Essays on the Effects of Home Legal Institutions and the Sarbanes-Oxley Act on Foreign IPOs in the US

By

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Submitted in accordance with the requirements for the degree of Doctor of Philosophy

Cass Business School

City University London

7 November 2013

Declaration

I declare that any material contained in this thesis has not been submitted for a degree to any other university.

I further declare that one paper titled “Earnings Quality in Foreign IPOs in the US: The Role of Home Country Institutions”, drawn from Chapter Three of this thesis, is co-authored with Igor Filatotchev and Gilad Livne.

Acknowledgements

I would to like to express my deep appreciation to my supervisors Professor Igor Filatotchev and Professor Gilad Livne for believing in me and being a great source of inspiration, motivation, and enthusiasm throughout the research project. Their experience, encouragement, and support certainly contributed to the completion and quality of this thesis.

In addition, I would like to express my gratitude to my PhD examiners, Professor Andrew Stark and Professor Peter Pope, for their most valuable comments and suggestions for strengthening the final version of this thesis and improving future works in line with the topic of this thesis.

Special thanks go to Ms. Malla Pratt and Mr. Abdul Momin for their invaluable support during, and even before, my studies. Also, I would like to express my thanks to all my colleagues at the Cass Business School. The financial support from the Cass Business School to pursue my doctoral studies is gratefully acknowledged.

I am grateful to Jay Ritter, Irem Tuna, Greg Bell, Keren Yona, Kaizad Doctor, Ben Armstrong-Haworth, Andrew Hunt, Pat Akey, Evy Bruyland, Giacomo Gadani and Pooja Karia for their assistance.

Finally, I would like to express my warmest thanks to my beloved parents, Menashe and An, for their support and well wishes and for being a great source of motivation. I am also grateful to my brother, my sisters, my grandmother, Eliane Sperling, my family in Belgium and my friends in Amsterdam and London who have all given me wonderful support and encouragement during the course of this thesis.

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List of Abbreviations

AMEX	American Stock Exchange
AIM	Alternative Investment Market
ARs	Depositary Receipts
ADR	American Depositary Receipts
BHAR	Buy-and-Hold Abnormal Returns
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
CRSP	The Centre for Research in Security Prices
EMEA	Europe, the Middle East and Africa
GAAP	Generally Accepted Accounting Principals
GDP	Gross Domestic Product
IAS	International Accounting Standards
IASB	International Accounting Standards Board
ICRG	International Country Risk Guide
IFRS	International Financial Reporting Standards
IPOs	Initial Public Offerings
LRW	Lang et al. (2006)
NPV	Net Present Value
NYSE	New York Stock Exchange
OLS	Ordinary Least Square
OTC	Over The Counter
PCAOB	Public Company Accounting Oversight Board
PWC	PricewaterhouseCoopers
R&D	Research and Development Expenses
SDC	Security Data Collection
SEC	Securities Exchange Committee
SEHK	Hong Kong Stock Exchange

SEOs	Seasoned Equity Offerings
SIC	Standard Industrial Classification
SOX	Sarbanes-Oxley Act
VCs	Venture Capitalists
UK	United Kingdom
US	United States of America

Abstract

The objective of this thesis is to investigate the role of home country legal institutions and the Sarbanes-Oxley Act (SOX) on the reporting quality, pricing and performance of foreign initial public offerings (IPOs) in US capital markets. The specific characteristics of foreign IPOs as have been recognized within the recently expanding literature on cross-listed firms make the focus of this research highly interesting and relevant given the growing number of firm that chose to make their initial public offering in foreign markets, typically the US markets. Using a unique dataset of foreign issuers in the US, this thesis addresses some of the unresolved issues of the impact of institutional differences on information asymmetry in foreign IPOs. To do this, I look at different agency problems over the life cycle of new issuers.

Specifically, the first empirical study of this thesis explores the earnings quality in foreign IPOs in the US and the relation to home country institutions. The second empirical study of this thesis investigates the effects of the home country institutions on the level of underpricing of foreign IPOs in the US, and whether underpricing is significantly different after the enactment of SOX. The third empirical study investigates the effects of the home country institutions on the long-run stock performance of foreign IPOs in the US, and whether performance is significantly different post the enactment of SOX.

The main findings of this thesis suggest that home country legal institutions matter to the reporting characteristics, to the costs of capital at the initial listing date and to the aftermarket stock performance of foreign IPOs in the US. Furthermore, there is mixed evidence regarding the effects of SOX on the reporting characteristics, to the cost of capital at the initial listing date and to the aftermarket stock performance. In contrast with some previous research on cross-listed firms, the results of this study suggest that although foreign IPOs may abandon their home capital markets by listing in the US, their reporting characteristics and costs of capital are nonetheless influenced by home country institutions.

CHAPTER 1

INTRODUCTION

Chapter 1: Introduction

1.1 Aims and Objectives

Over the last two decades there has been an increase in the number of firms seeking to raise capital in foreign markets, with US being the main target. A report on initial public offering (IPO) trends by PWC (2012)[1] points out that the share of IPOs in foreign markets has reached about 19% of the total IPOs globally. The data on US IPOs show that share of foreign IPOs increased to 25% of total IPOs in the US in 2009[2]. The increase in cross-border IPOs to the US can be explained by the fact that this can allow firms to mitigate potential adverse effects of poor home country institutions (Shleifer and Wolfenzon, 2002; Doidge et al., 2007; Stulz, 2009), or conversely, the desire to avoid tougher home institutions (Licht, 2003; Siegel, 2005). According to this view, foreign IPOs are regarded differently to domestic IPOs in the host country and even potentially differently to each other due to the differences in their home country institutions. Most research on foreign firms to date has largely focused on crossed-listed firms to the US with prior listing in their home country (e.g., Coffee, 2002; Foerster and Karolyi, 1999; Lang et al., 2006). However, there are a number of important differences between foreign IPOs and cross-listed firms concerning their scrutiny by regulators, the legal apparatus available to investors, data availability and reporting requirements they have to comply with (e.g., Caglio et al., 2013). This, in turn, suggests the presence of information asymmetry problems in foreign first-time issuers that have been largely overlooked are different than that of mature cross-listed firms.

[1] The Cross-Border IPO Trends 2012 report of PWC (2012) had been retrieved from http://www.pwc.com/en_GX/gx/audit-services/ipo-centre/assets/pwc-cross-border-ipo-trends.pdf on 6 July 2013

[2] Retrieved on 30 June, 2012 from http://bear.warrington.ufl.edu/ritter/IPOs2009foreign.pdf

The increasing phenomenon of listing abroad together with the shortage of empirical evidence related to foreign IPOs in the US make this group of firms an interesting focus for academic research. Consequently, this thesis attends to some unresolved questions regarding the impact of institutional differences on information asymmetry in foreign IPOs by studying the information asymmetry problems inherent in new foreign issues in the US. I investigate the relation between the reporting quality, underpricing and aftermarket stock performance, and the soundness of home legal environment of these firms in three empirical papers with each focusing on a different stage in the IPO life cycle. Using a unique dataset of foreign IPOs listing on US capital markets in the years 1990-2009, I study the relation between earnings management in foreign IPOs and home country institutions. I then investigate whether home country institutions are associated with the initial pricing at the listing date and the long-term stock performance subsequent to listing.

In conducting my analysis I note that during the sample period a few structural changes have taken place in the US, which may have affected the foreign issuers. More specifically, the Sarbanes-Oxley Act of 2002 (SOX)[3] introduced new reporting requirements, corporate governance, auditing procedures, and information disclosure requisites. All were set with the aim of increasing investors' confidence and eventually decreasing costs of capital for listed companies (Coates, 2007). Although strongly debated and subsequently contested, these changes were imposed on both domestic and foreign firms listed on US capital markets (Piotroski and Srinivasan, 2008). To my knowledge, no study has investigated the specific effects of SOX on foreign issuers in terms of asymmetric information problems in the initial offering stage originating from the firm's specific home institutional environment. Thus, bearing in mind that foreign IPOs come from a diverse range of countries, I further study the effects of SOX on foreign IPOs and whether the Act has had a different impact on foreign firms coming from weak and strong institutional environments.

[3] The terms "Sarbanes Oxley Act", "SOX" and "the Act" are used synonymously throughout this thesis.

To explore the relation between home institutions and the information asymmetry problem, I conduct three related studies. The first empirical study of this thesis focuses on the earnings quality of foreign IPOs prior their listing in the US. In this study I compare measures of earnings management of foreign IPOs in the US to US IPOs. The results of this study show that foreign IPOs are characterized by higher level of earnings management (more extreme reporting or earnings inflation) than domestic US IPOs. Also, earnings management by IPOs from countries with weaker institutions is either the same or lower than earnings management of IPOs from countries with strong institutions. Additional findings include evidence that a litigation threat constrains earnings management more in IPOs from countries with weak legal institutions. Furthermore, results show a constraining effect of the Sarbanes-Oxley Act on earnings management of IPOs from countries with weak institutions.

Prior research indicates that information asymmetry problems influence the initial pricing of IPOs (Welch, 1989; Ritter and Welch, 2002). The second empirical study of this thesis therefore investigates the effects of the home country institutions on the levels of underpricing of foreign IPOs in the US, and whether underpricing is significantly different after the enactment of the Sarbanes-Oxley Act. My findings indicate that there are differences in the level of underpricing based on IPOs home country institutions. Specifically, firms that are coming from countries with stronger legal institutions enjoy lower costs of capital (as indicated by their level of underpricing) relative to firms that come from weaker home country institutions. Additionally, this study shows no evidence that SOX has affected underpricing when home country institutions are controlled for. These findings shed light on the differences between cross-listed firms and suggest that while foreign IPOs may abandon their home capital markets by listing in the US, their costs of capital are nonetheless influenced by home country institutions.

The third empirical study of this thesis investigates the effects of home country institutions on the long-run stock performance of foreign IPOs in the US, and whether performance is significantly different after the enactment of the Sarbanes-Oxley Act. My findings indicate that the long-run performance of IPOs from weaker home

country legal institutions is higher than the long-run return of IPOs from stronger ones. I also find that foreign IPOs outperform matching domestic US IPOs. Furthermore, there is no evidence for a change in the long-run performance of the foreign IPO sample as a whole as a result of SOX. However, there is some evidence for a higher aftermarket stock performance of IPOs from stronger home institutions post-SOX relative to the pre-SOX period. The findings shed light on the differences within cross-listed firms and suggest that the cost of capital of foreign IPOs is influenced by home country institutions even when they leave their home capital markets by listing on US capital markets.

Collectively, the results of the three empirical chapters contribute to the understanding of the role of home country institutions in the pricing and reporting of foreign IPOs in the US. Specifically, results suggest that foreign IPOs from weak home institutions are subject to a higher litigation threat that constrains earnings management and at the same time are priced lower by investors. Furthermore, in contrast with some previous research on cross-listed firms, the results of this study suggest that although foreign IPOs may abandon their home capital markets by listing in the US, their reporting characteristics and costs of capital are nonetheless influenced by home country institutions. In addition, the thesis contributes to the ongoing discussion regarding the effectiveness of SOX in reducing the costs of capital and its effects on the competitiveness of US capital markets in attracting foreign capital. Specifically, it presents mixed evidence with respect to the effects of SOX on the reporting characteristics, to the cost of capital at the initial listing date and to the aftermarket stock performance.

The reminder of this chapter proceeds as follows. Section 1.2 describes the foreign IPOs sample selection and collection process and the motivations to focus on this group of firms. Section 1.3 discusses the motivations study the potential consequences of the enactment of SOX on foreign IPOs listed on US capital markets. Section 1.4 outlines the significance and contributions of the thesis and section 1.5 sets forth the structure of the thesis.

1.2 Foreign IPOs in the US Market

The motivation to focus on foreign IPOs requires justification. Specifically, how do foreign IPOs in the US differ from domestic IPOs? First, when seeking capital, US firms face different choices to foreign companies. These include listing on one of the US domestic markets or raising capital by other means and not listing at all. US firms are typically reluctant to list outside of the US due to liquidity considerations, media coverage, investors' preferences (Pagano et al., 2002; Lang et al., 2003). On the other hand, foreign companies face the option to list in their home country as well as listing abroad, typically in the US. Thus, foreign IPOs listing in the US should be influenced by different factors to domestic US issuers, and this listing choice acts as a signal to investors (Sanders and Boivie, 2004).

Second, when listing in a US market, a foreign firm enters into a larger pool of investors, many from the US, and thus the firm should reliably communicate its value and attract the interest of US investors. The reluctance of domestic investors to invest in foreign companies is recognized as "home-bias" and suggests that foreign firms face different problems than domestic issuers in attracting investors. This argument follows the findings by Covrig et al. (2007) that show an increase in share of foreign stocks in mutual funds' portfolios as a result of voluntary adoption of International Accounting Standards (IAS).

Third, Doidge et al. (2009) report a difference in ownership concentration and private benefit controls between domestic companies and foreign issuers in the US. They argue that foreign issuers are likely to have a high degree of both and so may have weaker governance.

Fourth, some researchers find differences in relation enforcement between foreign issuers and domestic firms. For example, Frost and Pownall (1994) report better compliance of domestic firms with reporting rules than foreign firms. They argue that this suggest 'a difference between regulatory monitoring and enforcement between foreign and domestic firms' (p. 77). Langevoort (2008) suggests that since it is more expensive to monitor and take actions against foreign issuers, the SEC will use

its limited resources on the regulation of domestic companies. It is argued that this will bring the highest potential benefits for US investors given the scarcity of resources (Lang et al., 2006).

Fifth, foreign IPOs are coming from countries with different institutional environments. According to the institutional theory, these variations are highly important to the understanding of firms' performance owing to the country-of-origin specific factors (Bell et al., 2008; Bruner et al., 1999, 2006; Moore et al., 2010).

These arguments combined suggest that the foreign IPOs group is unique with respect to IPOs at the host as well as the home country, to mature US firms and to cross-listed firm to the US and therefore requires a specific consideration and focus.

1.3 Changes in the Regulatory Environment in the US

The Sarbanes-Oxley Act of 2002 was introduced in response to high-profile accounting scandals that occurred in the preceding years. The Act aimed at restoring investor confidence, and as a result, at reducing the costs of capital for listed companies. With that goal in mind, US legislators composed accounting and corporate governance related reforms which came to be enacted in the Sarbanes-Oxley Act.

The effects of SOX on the costs of listing and reporting have contributed to the ongoing debate regarding the Act's effectiveness, especially with respect to information asymmetry problems (DeFond et al., 2005; Litvak, 2007; Coates, 2007; Li et al., 2008). Different studies examine the effects of SOX on all companies listed on US capital markets. In the case of foreign firms, studies have mostly focused on their initial public offering (IPO) performance and the delisting of foreign registrants from the US. Some report a positive impact of SOX on firms' performance (Li et al., 2008) while others report negative effects (Zhang, 2007; Kamar et al., 2008). However, not much has been done to shed light on the effect of the Act's implementation specifically on foreign IPOs short-term and long-term performance in the US markets. This differs from domestic IPOs due to the altered agency problems originated from information asymmetry between management, underwriters and capital providers.

Furthermore, literature reports conflicting evidence for the overall effect of SOX requirements on performance and information issues of foreign IPOs (Litvak, 2007; Zhang, 2007).

The strength of competitiveness in US capital markets is determined by the levels of liquidity and diversification. These factors also influence the attractiveness of the US market for foreign issuers (Romano, 1998). Since the requirements of SOX do not make a distinction between local and foreign listed companies, it is important to examine the specific effects of SOX on the costs and benefits for foreign issuers and to evaluate how valuable the Act is for foreign companies, even more with respect to their home country institutions. My review of the literature has shown that there has been relatively little academic attention paid to the case of foreign IPOs. Specifically, too little consideration has been attributed to the links between asymmetric information problems in the different stages of the IPO life cycles, the country-of-origin factors such as legal and institutional framework, and changes in the host country institutional framework as a result of the Act. Moore et al. (2010) document significant evidence for the institutional environments on performance. Other scholars argue for a strong connection between information asymmetry problems and IPO performance (Ritter and Welch, 2002). The authors suggest a strong impact of SOX on the information environment and performance of domestic firms in the US. In addition, La Porta et al. (1998) find that the companies which will benefit the most from cross-listing to markets with stricter regulations are those with highly concentrated and poorly regulated domestic market. Thus, the stricter regulatory environment following the introduction of SOX should have a different effect on foreign companies with respect to their home country institutions. Yet, clear evidence for the relationship between these suggested factors is lacking.

This research aims to contribute to the growing debate by studying the interactions between asymmetric information problems in different stages of the IPO process of foreign firms and changes in reporting and auditing requirements introduced by SOX on foreign IPOs performance with respect to their institutional

environments. This focus implies key implications of the attractiveness and soundness of the US capital markets and on the costs and liabilities of foreign companies.

The question of the potential effects of SOX on foreign IPOs with respect to asymmetric information problems remains to be clarified. First, the Act is likely to affect the motivations to list on US capital markets. SOX changed the legal liabilities of company managers and other insiders. In the post-SOX period, self-dealing became more costly. Therefore, by listing in the US, managers send a stronger signal to minority investors by giving up on some of the control and thus there is a shift in wealth from insiders to investors (Ashbaugh-Skaife et al., 2009). The magnitude of this signal is suggested to be even stronger for companies coming from countries with weak investor protection environments.

Second, Leuz (2007) argues that the enactment of SOX implies both higher costs of self-dealing for managers, and so reduces private benefits, but also larger potential benefits for the firm in the form of lower costs of capital. According to this hypothesis, insiders opt to list in the US only when the benefits outweigh the costs and thus when growth opportunities are sufficiently valuable and imply high returns on capital to initial owners. Therefore, SOX can be expected to change the balance of the cost and benefits and better align the incentives of insiders and investors in foreign listed companies.

Third, since foreign issuers inherit agency problems from their home country level institutional and legal setting (Engelen and van Essen, 2010); they are expected to be affected differently by changes imposed by SOX on disclosure and governance standards.

Hence, the case of foreign IPOs is interesting due to the higher relevance of asymmetric information problems between managers, investors and other stakeholders of the issuing firms (Francis et al., 2010; Bruner et al., 1999). The costs associated with asymmetric information such as underpricing, defined as the difference between the first day closing price and the offer price (Loughram and Ritter, 2002), are expected to be smaller in the post-SOX period than the ones of the pre-SOX period for all IPOs. This can be reasoned by the expected reduction in

asymmetric information resulting from the SOX requirements as reported in Kaserer et al. (2008). This outcome is expected to be even stronger for foreign IPOs due to the fact that foreign IPOs are subject not only to the "liability of newness" (caused by the modest publically available information and typically short historical operating record), but also to the "liability of foreignness", which referred to the additional costs endured by foreign issuers resulting from information asymmetry problems between different parties (Moore et al., 2010). Furthermore, international market experience higher potential for an unequal distribution of information between national and foreign investors. Finally, Piotroski and Srinivasan (2008) argue that the net effect of SOX on the relative cost and benefit generate by listing in the US depends upon the IPO's characteristics and the alternative listing options and thus vary across foreign listing candidates. The institutional environment of the IPO is suggested to have a relation to this net effect.

1.4 Data Selection

The foreign IPO sample selection process starts by identifying companies that were first time issuers to US markets between 1990 and 2009. Only firms with no prior listing in any market within or outside of the US are included in this sample. According to the Security Data Corporation (SDC) New Issues database classification, foreign firms are firms that were incorporated and whose primary executive offices are located outside of the US (Bruner et al., 2006). I exclude equity listings that originate from spin-offs of publically-listed companies or from mergers and acquisitions, following Bruner et al. (2006), as well as utility firms. Further eliminated are warrants, units and rights offerings. Firms that are based in the Bahamas, the Cayman Islands, and Bermuda are also removed from the sample. This is due to the fact that those are typically US firms within the financial services industry that are registered in these locations for tax reasons and, although they comply with the definition of foreign companies, they do not fit the specific context of this research. I also exclude all firms with insufficient financial data.

I have obtained a copy of each firm's prospectus to manually extract the variables needed for the empirical investigations that constitute this thesis and are not available in any widely available database. This is done through the Edgar database provided by the Securities Exchange Committee (SEC), the Perfect Filing database and Professor Jay Ritter's private collection of company prospectuses. This gives us a unique dataset to analyze which has resulted in several original findings.

1.5 Significance of the Thesis

This thesis contributes to the growing literature concerning the impact of legal and economic incentives on the reported and performance outcomes of companies in several ways. First, there are only a few papers that examine the link between home institutions and reporting quality in foreign issuers in US capital markets. As foreign IPOs are a large, global and growing phenomenon, this study expands our understanding of financial reporting aspects of this important economic activity.

Second, complementing Lang et al. (2006) it provides evidence that indicates that compliance with US rules is not the same for foreign IPOs and cross-listed firms.

Third, it highlights that reporting outcomes by foreign IPOs traded in the *same* market with *same* rules applied to all are not uniform and may depend on country of origin.

Fourth, evidence provided here is relevant for the debate on the validity of the "bonding hypothesis," which hinges on the commitment of foreign firms to the US legal, reporting and enforcement environments (Coffee, 1999, 2002, and Stulz 1999, 2009 vs. Licht, 2003 and Siegel, 2005). To the extent that a foreign IPO in the US represents the most powerful form of bonding, evidence in this study suggests that even this may be insufficient to obtain credible disclosures at a level similar to US IPOs.

Fifth, this thesis is among the first to study earnings management in IPOs using data directly from IPO prospectuses. Similar to Ball and Shivakumar (2008) it thus better captures the net effect of incentives that prompt earnings management to inflate

IPO proceeds and counter-incentives to deflate earnings in the face of heightened regulatory scrutiny. Findings are consistent with a different incentive mix for foreign IPOs in the US compared to domestic US IPOs.

Sixth, it adds to the existing body of literature on the effect of SOX on firms' agency problems, in particular relating to information asymmetry evidenced in the underpricing and aftermarket performance of foreign IPOs which are traded on US capital markets.

Seventh, it focuses specifically on the role of the institutional differences at the country of origin before and after the enactment of SOX. This focus contributes to our understanding of how changes in the legal environment of a host country affect the flow and performance of foreign issuers and how these relate to their home country legal institutions.

Eighth, it sheds light on the differences in the role of firm level governance mechanism and the evolution subsequent to the enactment of SOX. These are revealed through the level of underpricing at IPO and the aftermarket stock performance.

Overall, the focus on the home legal institutions of foreign IPOs as a unique set of firms sheds new light on the literature addressing the extent to which institutions affect firm performance (Doidge et al., 2007; Engelen and van Essen, 2010; Hail and Leuz, 2006). These findings have direct implication towards the ongoing debate about the competiveness of the US markets and the procedural costs associated with the Sarbanes-Oxley Act and are of interest to both practitioners as well as policy makers.

1.6 Structure of the Thesis

The thesis consists of six chapters. The following chapter provides an overview on the theoretical background of this study. In particular, it summarizes the reasons firms undergo IPOs and the motivations to list abroad. It also discusses the aims of the Sarbanes-Oxley Act of 2002.

The thesis also contains three empirical studies. Each study focuses on the effects of home country legal institutions and SOX on foreign IPOs with regard to

different information asymmetry problems that occur in different stages of their life cycle, i.e. earnings quality in the pre IPO stage, adverse selection through initial returns in the first listing day, and changes in moral hazard as expressed though the long-term performance.

The first of these studies form the third chapter of this thesis. This study compares measures of earnings management by foreign IPOs listed in the US to domestic US IPOs. It also compares measures of earnings management between foreign IPOs from countries with strong legal institutions and foreign IPOs from countries with weak legal institutions.

The fourth chapter of the thesis reports the second empirical study. This study investigates the impact of the introduction of SOX on information asymmetry problems as mitigated through the form of underpricing.

The fifth chapter of the thesis reports the third empirical study. This study investigates the effects of the home country legal institutions on the long-term stock performance of foreign IPOs in US capital markets. The study also examines potential effects that are associated with changes in the information environment in the US as a result of the enactment of SOX in 2002.

The sixth chapter of the thesis provides the overall conclusions from this work, discussed with regards to objectives of the thesis.

CHAPTER 2

THEORETICAL BACKGROUND

Chapter 2:
Theoretical background

2.1 Overview

Over the past few decades, capital markets have experienced enhanced international capital mobility. This ongoing globalization, together with technological progress and increased sophistication in investors' diversification strategies, introduces a trade-off between market segregation and market consolidation where the main issues to be considered are liquidity, information asymmetry, well-functioning price mechanism and diversification. This process encouraged firms to seek out the most valuable capital market for their needs (Stulz, 1981; Chemmanur and Fulghieri, 2006).

A company's decision of whether to go public is rather complex. First, it has to decide on whether to remain private, financing its growth with internal funding and debt, or to go public, extracting the needed funds through issuing equity. Secondly, once the latter alternative is chosen, the market in which the company would issue its equity is in question. Namely, the firm can issue its stocks in a local market, a foreign market or a combination of the two, as in the case of multiple stock listing.

A decision to go public or to cross-list on a major foreign market is a consequence of costs and benefits analysis. The benefits of listing a company abroad can include an increasing shareholders base by avoidance of investors' barriers of entry, increased liquidity, provisions of better information and commitment for the adoption of superior corporate governance regimes (Pagano et al., 2002). Potential costs involve the need to reconcile differences home country and the foreign exchange (Amir, et al., 1993), additional requirements on corporate governance (Pegano et al, 2002), additional disclosure requirements that may entail loss of proprietary

information (Beatty and Ritter, 1986), greater litigation risk (Huijgen and Lubberink, 2005), and higher exposure to regulatory scrutiny (Gietzmann and Isidro, 2010).

Various studies examined the different motivations of companies to list abroad. Coffee (2002) argues that globalization and technology developments are the two main factors that enhance market consolidation, and ultimately lead to listing abroad. Evidence shows a substantial premium for foreign companies listing abroad over their domestic peers (Doidge et al., 2002; Miller, 1999). The most important theories aiming at reasoning this documented premium are (1) the Market Segmentation Theorem which argues that listing abroad reduces the cross-border barriers for investors and generates enhanced liquidity (Forester and Karloyi, 1999). (2) The Liquidity Theorem that postulates that when going a broad investors' base increases while credit constraints reduces (Doidge et al., 2002). (3) The Information Environment Theorem which suggests that by listing in a capital market with better information disclosure requirements, firms signal to investors of their high quality. In other words, reliable information reduces the costs of tracking the accurate financial situation of the company (Merton, 1987; Blass and Yafeh, 2001). (4) The Bonding and Monitoring Theorem which argues that firms from an inferior investor protection environment can credibly bond themselves to small private investors by choosing to operate in an environment with superior investors' protection through the form of listing abroad (Coffee, 2002). (5) The Institutional and Legal Environment which argues for significant relation between country-of-origin institutional factors and foreign IPOs performance. According to this view, the legal and regulatory environment in the host country plays a major role in limiting agency problems (Moore et al., 2010). It is important to note that these theories are commonly considered as complementary rather than conflicting.

The latter three theories stress corporate governance considerations in the motivation of firms to list abroad and for investors' confidence. Shleifer and Vishny (1997) postulate that corporate governance understanding stimulates key institutional alterations where such are needed in order to assure a fair return on invested capital for investors.

An important case of such a change had occurred in 2002, when the Sarbanes-Oxley Act was introduced to the US financial markets by the US Securities and Exchange Commission. This act served as a response to major accounting scandals such as the Enron and the WorldCom cases. These had cost investors billions of dollars owing to the collapse of share prices of affected companies, while causing a loss of public confidence in the nation's securities markets. Thus, the purpose of the enactment of SOX was to increase investors' confidence in reporting and auditing, which should lead to a reduction in the cost of capital by enforcing higher reporting standards and conducts in the US financial markets. Accordingly, the Act's resolutions were imposed on all companies traded on the US markets, including foreign companies. Consequently, both the direct and indirect costs of listing a company on US capital markets have been affected substantially for both US and foreign firms.

The following subsections discuss the relevant issues and considerations of foreign issuers in the US from the decision to go public to the differences in regulations.

2.2 Why Going Public

In the past few decades, the increase in liberalization of capital markets has introduced growing financial instruments. Consequently, a company in quest for capital faces numerous alternatives. These are typically: internal financing, debt and going public. Modigliani and Miller (1958) argue that in an efficient market, that lacks corporate taxes, bankruptcy costs and asymmetric information, no importance is to be attributed to the way a company is financed. Clearly, these conditions do not hold for the existing financial markets, and, thus, each of these alternatives holds some costs and benefits.

Internal financing implies obtaining funds, which are needed for company's growth from company's assets. This alternative is especially relevant in case of asymmetric information whereby the cost of capital is set on a high level, to

compensate investors for potential adverse selection problems (Hubbard et al., 1995). However, internal available resources are very limited for most of the companies.

As for debt, a company can finance its growth by issuing corporate bonds on for investors or by obtaining loans from private investors or financial institutions. The advantages of debt are the relatively low cost of capital due to seniority of debt holders in case of bankruptcy and, most importantly, the benefits of tax shield. In addition, increasing leverage imposes financial discipline on management as it reduces the level of available cash in the company (Jensen, 1986). However, debt can also lead to underinvestment due to debt overhang problems (Myers, 1977; Johnson, 1998). Nevertheless, managers might be encouraged to undertake risky projects when the excessive risk is born by debt holders and the upside gains are enjoyed by shareholders. However, if lenders anticipate this, they will increase required cost of debt for the firm. Moreover, management might reject positive NPV projects, even though they increase firm value. According to Kraus and Litzenberger (1973) the marginal benefits of debt decline as debt increases, while marginal costs increases, so that a firm optimizing its overall value will focus on this trade-off when choosing the optimal levels of debt and equity in its capital structure.

As for going public, this decision is very complex and it implies costs and benefits trade-offs. These are discussed in the next subsections starting with the cost of going public and thereafter the potential benefits of going public are presented.

2.2.1 Costs of Going Public

Pagano et al. (1998) present the costs of going public as:

i. **Adverse Selection** – in the presence of adverse selection hazard, investors will demand a compensation for their risk, mostly in the form of IPO underpricing. This is mainly the case of young companies 'with little track record and low visibility' (p. 36). Consequently, two types of companies will be encouraged to go public; either young low quality firms or well-known large corporations.

ii. **Administrative Expenses and Fees**- in addition to the costs incurred in the IPO process, once listed and traded companies face considerable further expanses. These expenses include the yearly costs of auditing, stock exchange fees, certification, etc.

iii. **Proprietary Information** - public companies must respect the rules and regulations of quoting stock exchanges. Accordingly, they are requested to reveal key information and in this way harm their competitiveness, also known as propriety information. This aspect is crucial for R&D companies, which pivot around information and information control.

However, as shown in the next subsection, going public suggests also substantial benefits to companies.

2.2.2 Benefits of Going Public

The following list presents potential benefits of going public:

i. **Overcoming Borrowing Constraints** – through public offering a company bypasses constraints imposed by banks and venture capital firms. These constraints can be significant for high-levered company with high growth potential. Additional leverage is particularly expensive due to debt overhand problems and the alternative of going public is often used to attract investment from public investors when the existing debt from financial institutions is high. Thus, IPO will be the only way to raise capital if the risk is too high and high risk can be borne by investors (Pagano et al., 1998).

ii. **Increasing Lenders Competition –** Rajan (1992) argues that through public offering a company can reduce the bargaining power of its current lenders. In this way they can attract investment for a cheaper cost of capital.

iii. **Liquidity and Portfolio Diversification** – by going public a company can significantly reduce the costs of trading with private equity. As a result, the

reduction of costs, together with the increased availability to dispersed investors, increases the liquidity of the company in question. Logically, trading volumes also significantly increase. Moreover, public offering allows the initial owners to diversify their investment portfolio. This can be achieved by either privately investing in stocks of other companies or acquiring stakes of other companies to diversify the company's business. This is mostly important in case of risky companies (Pagano, 1993).

iv. **Monitoring** - Pagano et al. (1998) argue that a publicly listed firm enjoys better managerial monitoring. In their view, managers will have a higher discipline and will perform better due to a hostile takeover risk, higher level of information disclosure and the introduction of options and stocks in their compensation package. In addition, going public might reduce over-monitoring problems that usually affect private companies with several owners.

v. **Investors' Recognition** – public offering can also contribute to the company's advertisement and media coverage. Indeed, listing a company on a large stock exchange leads to a wide public acquaintance with the firm's name and line of business. This should positively affect the operating performance of the company.

vi. **Change of Control** – going public can also be used by initial investors and owners as an instrument for initial investors to cash-out on their investment in the firm. Zingales (1995) suggests that this will be the case when the potential proceeds of public offering for the initial investors are higher than those of private sale. He further argues that public companies are more prone to be takeover targets than private ones. Therefore, entrepreneurs will be keener to list their company on stock exchanges in the expectation to attract acquirers. Moreover, it is harder for the acquirers to pressure outside investors than to pressure targets on price concession in the case of public companies. Overall,

entrepreneurs can facilitate the acquisition of their company better when going public.

vii. **Momentum Valuation Advantage** - Ritter (1991) regards the initial public offering as a way for a company to benefit from overvalued industry. In other words, when a management of a private company believes that its publically listed competitors enjoy higher stock prices than their real value, it can try to reap this premium associated to its industry by going public. In this case, the initial owners will get a higher price than the fair price. However, the IPO process implies high costs that can actually cancel out this premium.

A number of theories attempt to rank the different financing alternatives. Myers (1984) introduces the concept of relevance of asymmetric information in the Pecking Order theory. The theory ranks the different financing alternatives, and concludes that internal financing should be used first, thereafter debt, and only when this latter option is depleted, equity should be issued. In this line of thinking, the financing choice can act as a signal for investors. The implication is that the company issues new equity when it is overvalued. Therefore, rational investors will attribute a lower value to any new equity issuance.

The following subsection discusses the different listing alternatives for a company that chooses to go public.

2.3 Why List Abroad

Once a company decides to go public, it has to identify the specific stock market on which the equity is to be quoted. In line with the recent movement towards market consolidation, a firm faces two alternatives; it can issue its stocks either domestically or in a foreign market. The issuing company can also go for a combination of these two alternatives, namely, cross-listing or direct listing on foreign securities exchanges. The following subsection discusses the different listing alternatives of listing abroad.

2.3.1 Different Alternatives of Listing Abroad

2.3.1.1 Cross Listing

Cross listing is the action of issuing stocks on at least one additional foreign exchange markets besides the domestic market. This paper focuses on American cross-listing programs, namely, American Depositary Receipts (ADRs). The four levels of ADRs are:

- **Level I Facility-** this is the simplest form of ADR in which the company issues shares that are traded over-the-counter (OTC); also known as "pink sheet" market. The benefits of this form for the company are the increased liquidity offered by the introduction to the US markets, the quick process, and limited information disclosure required. By choosing this form the firm avoids complying with US Generally acceptance Accounting Principles (GAAP) and most of the Securities and Exchange Commission (SEC) regulations. Moreover, this is the cheapest cross-listing process is relatively to other alternatives. However, the disadvantage of this form is that trade can be conducted only OTC and therefore, it remains rather limited.

- **Level II Facility** – ADR securities are listed on ordinary Exchanges. This form is more expansive and time consuming than Level I as the firm must conform its accounting procedures to the US GAAP or the IASB IFRS[4] and fulfill the SEC requirements. The major advantage of this alternative relies in the wider exposure to relevant trading parties and easier accessibility to stocks by potential investors.

- **Level III Facility** – a form in which the company enters the primary and the secondary market by conducting the underwriting process in the US markets.

[4] Since 2007, see section 2.3.3 for more information

Following this process, the foreign firm must comply with all requirements and rules as domestic US companies. Through the issuing process the firm must file an offering prospectus (Form F-1) as well as annual financial statements (Form 10-F). Moreover, any information disclosed to its shareholders in the domestic market ought to be reported to the SEC and filed in the US through Form 8-K. As in level 2, the advantages of this alternative are the easy accessibility of investors to company's stock, the large exposure to investors and wide media coverage that can boost company's sales. The disadvantages are the high costs of reporting and complying with regulations, information disclosure and underwriting costs.

- **Private Offering (SEC Rule 144A)** – a form that allows the foreign company to be traded on PORTAL which is 'a private electronic market on which only very large institutional investors can trade' (Coffee, 2002, p. 1785). In this form, the company bypasses the regulations of the US GAAP or the IASB IFRS and still gets an access to a large pool of institutional investors.

2.3.2 Direct listing

This alternative is reasonably similar to Level III Facility but unlike the latter, the company is not mainly traded on its domestic market. Therefore, compliance with all the US GAAP or the IASB IFRS and SEC regulations and requirements is compulsory. The process is typically cheaper than cross-listing because the company is required to pay less administrative fees for exchanges as it is listed only on one exchange. In addition, the firm is subject to fewer fees for financial services such as underwriting and auditing due to the fact that it is listing on one market.

The following section discusses the impact of listing abroad on companies' valuation.

2.3.3 The basic requirements of foreign IPOs

Although not very relevant to this thesis due to the years covered (1990-2009), it is important to note that there has been a recent change in the reporting requirements of foreign firms. More specifically, since 2007 the SEC has permitted the choice of IASB IFRS in financial reporting and thus shifted from requiring foreign firms to comply with the US GAAP reconciliations. Except for this important development little else has been changed over the last few years with respect to foreign issuers in the US. The following subsection describes the most current financial statement listing requirements of foreign issuers in US securities offerings as documented in the Financial Reporting Manual of the Corporate Finance Division of the SEC (2013)[5], a report by Latham & Watkins LLP and KPMG (2011)[6], and in a report by Jones Day (2012)[7].

The US Securities Act of 1933[8] sets forth the requirements of public securities offerings registered with the SEC. These generally require a filing of a registration statement with the SEC and consequently the distribution of a prospectus in association with the specific offering. The issue prospectus and registration statement must include financial information on the issuer's financial conditions and operating performance together with its financial statements. The financial statements must consist of a balance sheet, income statement, statement of changes in equity, statement of cash flows and related notes and schedules as required by the accounting system under which the statement has been prepared. The registration statement must

[5] The "Financial Reporting Manual" report by the Division of the Corporation Finance by the SEC had been retrieved from http://www.sec.gov/divisions/corpfin/cffinancialreportingmanual.pdf on 20 July 2013.
[6] The "Financial Statement Requirements in US Securities Offerings: What Non-US Issuers need to know" report by Latham & Watkins LLP and KPMG (2011) had been retrieved from http://www.lw.com/thoughtLeadership/financial-statement-requirements-in-us-securities-offerings on 20 July 2013.
[7] The "Foreign Private Issuers of Equity Securities in the United States" report by Jones Day (2012) had been retrieved from http://www.jonesday.com/files/Publication/eac766b4-2ad2-4d77-bd26-6e64e535356c/Presentation/PublicationAttachment/421bfeda-3d79-48ea-aec0-6efa215956bf/Foreign%20Private%20Issuers%202012.pdf on 20 July 2013.
[8] The US Securities Act of 1933 had been retrieved from http://www.sec.gov/about/laws/sa33.pdf on 20 July 2013.

include audited financial statements which are prepared in accordance with US GAAP, IASB IFRS, or local GAAP/non-IASB IFRS reconciled to US GAAP. The foreign issuer must provide audited financial statements of the last three fiscal years except for cases in which (1) the issuer's incorporation date is within the required fiscal three years, (2) the issuer's jurisdiction outside of the US does not require a balance sheet of the earliest year of the three-year period, and (3) the financial statements have been prepared in accordance with US GAAP. In the latter case, the financial reports of earliest year of the three-year period may be omitted as long as the information has not been previously filed under the US Securities Exchange Act of 1934.[9] In addition, the issuer must provide consolidated interim financial statements for issues where the registration statement becomes effective for more than nine months within the last audited fiscal year.

The financial reports of the foreign issuer may be reported in any currency. However, the issuer must provide supplementary information to quantify the effects of inflation on reported figures when the financial reports are dominated in a currency of a country that has experienced cumulative inflation of over 100% in over the most recent years prior the filings or when the statements do not include constant currency or current cost basis information (Jones Day report, 2012). The foreign issuer should also disclose information on revenues and sales, operating profit or loss, and assets with respect to industry and/or geographic segments.

Thus, while local accounting standards are important in the reporting of foreign issuers in the US, much effort has been given by US regulators to facilitate uniform reporting standards for this group of firms with some flexibility. It is important to note that in this thesis all firms have been reported their audited financial statements in accordance with the US GAAP or their local GAAP with reconciliation to US GAAP and thus financial information is highly comparable. However, potential differences in financial reporting resulting from domestic standards may still be

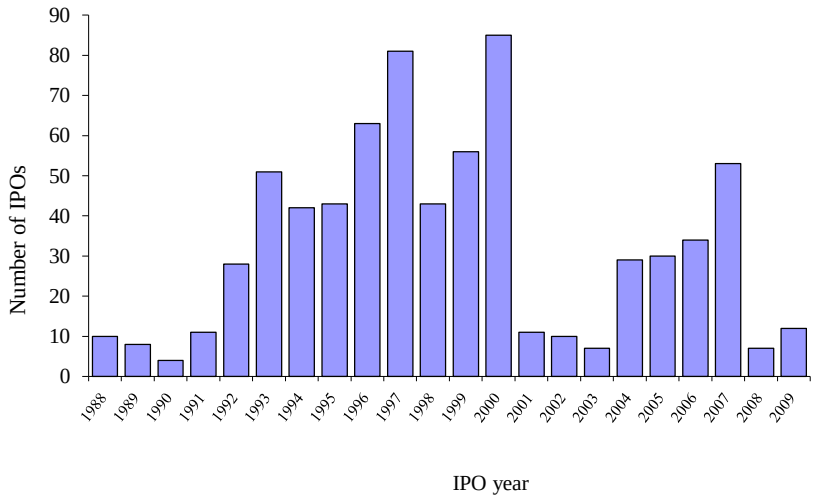
[9] The US Securities Exchange Act of 1934 had been retrieved from http://www.sec.gov/about/laws/sea34.pdf on 20 July 2013.

important and are thus addressed in various ways in the empirical chapters of this thesis.

2.3.4 The Impact of Listing Abroad on Companies' Valuation

In recent years, a growing number of firms have chosen to issue their securities abroad. At the end of 2006, about 1145 foreign companies were registered on the SEC. As evident from Figure 2.1, the distribution of the foreign companies reporting with the SEC by year follows trends. Specifically, there is a large annual increase in the foreign firms listed prior 2002. Then the numbers are increasing again until the 2008 subprime crisis.

Figure 2.1 – Foreign IPOs by year

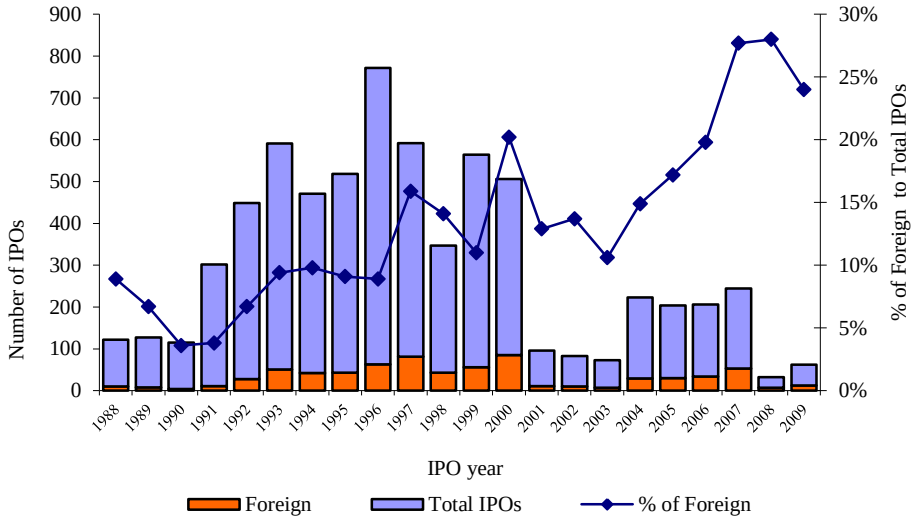


Source: Prof. Jay Ritter of the University of Florida[10].

However, as Figure 2.2 shows, the relative number of foreign registrants to domestic IPOs is increasing even after 2002 suggesting that listing in the US may still be attractive to foreigners.

[10] Retrieved on 30 June, 2012 from http://bear.warrington.ufl.edu/ritter/IPOs2009foreign.pdf

Figure 2.2 – IPO Distribution in the US by year, and the share of foreign to all IPOs



Source: Prof. Jay Ritter of the University of Florida[11].

The increasing occurrences of international listing over the last decade have attracted the attention of many scholars aiming at investigating the impact of listing abroad on stock returns. The following subsection introduces the relevant studies focused on this issue and sets forth an analysis of the costs and benefits of listing abroad. However, it is important to clarify that most of the research involves cross-listing to the US, unlike this thesis that focuses on exclusive listing with no prior listing. Nevertheless, both alternatives are dictated by similar motivations as "most of the incentives associated with cross-listing in the US can also affect foreign corporations' decisions to conduct their IPOs in the US" (Yehezkel, 2006, p. 14).

Coffee (2002) stresses that globalization and technology processes are the two factors that enhance market consolidation, and ultimately lead to listing abroad. He writes:

> "Globalization has lowered the barriers to cross-border capital flows, including in particular traditional restrictions on foreign investments in

[11] Ibid.

> domestic stocks, and because technology has made instantaneous information flows feasible, securities markets can now compete on a global basis that never previously was possible." (p. 1759)

Between 1975 and 2006, the percentage of foreign listed companies on the NYSE and NASDAQ has increased from 2.12% to 10.78%[12]. As a result, competition between global markets has grown fiercer. Typically, the capital markets that offer the most advanced technology, the greatest liquidity and the lowest trading costs are the better-off ones. Moreover, there is a clear first-mover advantage as traders are attracted to the most liquid markets. As a result, those markets become even more liquid. This process is summarized by the commonly used phrase "liquidity attracts liquidity" (Di Noia, 2001, p. 55).

Furthermore, different studies show a clear "cross-border premium" for companies which cross-list to a leading foreign market, typically US market. Doidge et al. (2002) find that this premium reaches up to 16.5% comparing to non-cross listed companies. Miller (1999) documents significant evidence for abnormal returns in the case of cross-listing to major US securities markets. In particular, the author discovers that firms from emerging markets enjoy an average abnormal return of 2.63%. Moreover, Foerster and Karolyi (1999) find an evidence for a significant abnormal long-term return for cross-listed companies. In particular, they find excess reruns of 19% in the year prior to the actual listing as a result of the cross-listing announcement. This is followed by additional 1.2% increase in the listing week and a decline of 14% of the excess returns during the first year in which the company is dual-listed. This evidence is supported by other studies suggesting that firms can increase their value through cross-border listing (Coffee, 2002).

The following theories analyze different possible motivations for listing in foreign markets. It is interesting to note that these theories often complement each other rather than compete with each other.

[12] Base on NASDAQ Performance Report 2008. Retrieved from http://www.nasdaq.com/newsroom/stats/Performance_Report.stm

i. Market Segmentation Theorem

This theorem addresses the risk premium required by US investors, which is highly affected by cross-border investment barriers. These obstacles emerge from different market conditions such as taxation, regulatory restrictions, accounting standards, information asymmetries, etc. These costs carry a burden, in particular for foreign investors, which add to the required rate of return on investment. In addition, the higher costs are expected reduce the foreign investors' involvement in cross-border stock markets. Merton (1987) suggests that managers have incentives to widen investors' base in order to reduce their firms' costs of capital. He goes further by claiming that this is one of the dominant motivations of companies to go public. Foester and Karolyi (1999) apply this suggestion to international listing and argue that by listing abroad, a firm can further reduce its cost of capital, alleviate investing barriers for US citizens and capture a wider base of shareholders. Thus, a larger number of investors bear a smaller portion of individual's risk (risk-sharing) and therefore require less compensation for their investment. Thus, a US listing reduces the cross-border barriers for investors and enhances liquidity. Miller (1999) finds a positive correlation between abnormal returns and the level of restrictions on capital flows originated by firms' cross-listing announcements. Consequently, it can be concluded that market segmentation "creates and incentive for firms to cross-list in order to achieve market integration" (Coffee, 2002, p. 1779).

ii. The Liquidity Theorem

Liquidity is typically measured by bid-ask spreads, trading volumes and a change in investors' base. By accessing a more developed capital market abroad, the company enters a larger investors' pool. As a result, firms tend to list securities abroad in deep and liquid markets so that they can benefit from the segmentation effect as well as a decrease in the cost of capital. The reasoning is a rather simple one; once traded in a global liquid market, the firm faces more potential investors, and less credit constraints. Logically, these benefits are mostly important to firms with high growth

potential. Errunza and Miller (2000) prove that the cost of capital for high growth companies does decline significantly as a consequence of cross listing to US markets. This effect is even stronger for firms that complete an IPO process in order to finance its anticipated growth (Doidge et al., 2002).

iii. The Information Environment Theorem

A firm might choose to list its equities on foreign markets which require more information disclosure than the domestic market. This theorem suggests that by listing in such markets, the firm can credibly signal its superior quality to investors by committing to a costly disclosure policy. This should have a beneficial effect towards a reduction in cost of capital. According to Merton (1987), the increase in reliable information reduces the costs of tracking the accurate financial situation of the company. This implies an increased demand and lowers cost of capital. Barry and Brown (1985) stress the effect of risk on cost of capital by arguing that accurate information reduces the investor's risk and lowers the required rate of return. Lang et al. (2003) stress the importance of US analysts' forecast for foreign firms' value creation. They list numerous motives to clarify why cross-listed firms experience high information disclosure. First, the company must comply with additional explicit disclosure requirements. Second, the company faces greater implicit pressure by analysts to reveal supplementary information to the market. Finally, analysts show more interest for cross-listed companies since they attribute to such firms higher quality and wider market interest. As a result, a larger number of analysts will follow the cross-listed company. In addition, the authors postulate that cross-listed companies enjoy more accurate future earnings forecasts, relatively to firms in their domestic markets. They argue that stock returns of cross-listed companies are sensitive to analysts' exposure and therefore react positively to higher coverage. Thus, the listing firm's value increases simply by the fact that it is now subject to a more credible and wider analyst reporting. The latter increases the investors' base, lowers the risk faced by investors, and, consequently, reduces the cost of capital. Additionally, Pagano et al.

(2002) combine the Liquidity Theorem and the Information Environment Theorem and conclude that the value of the firm increases because cross-listing positively affects transparency and contributes to attracting more domestic as well as foreign capital. Furthermore, Carter et al. (1998) argue that the reputation of underwriters significantly affects the IPOs' long-run performance. In other words, long-run returns are higher as the reputation improves. Finally, Michaely and Shaw (1995) show that the auditors' prestige positively correlates with the IPOs performance. They claim that as auditor's prestige level increases, the risk associated with the IPO decreases. The researchers identify two aspects of such relationship. First, prestigious auditors charges higher fees and chose to service less risky clients to maintain their high reputation. For high quality firms, the higher fees charged by better auditors serve their incentives to reveal their true quality to the market. Second, prestigious auditors serve "deeper" investors, and, therefore, face more lawsuits risk in case of underperformance of the IPOs. As a result, they are likely to be more accurate in order to protect themselves against such lawsuits.

iv. The Bonding and Monitoring Theorem

Coffee (2002) suggests that a firm can increase its value by listing in foreign markets that have stricter investor protection regulations; in particular, minor investors. He also argues that the potential benefits will be higher for a firm with weak investors' protection regime in its domestic markets. He writes that through listing in US stock exchanges "the listing firm commits to respect minority investors' rights and to provide fuller disclosure" (p. 1780). He also sets forth the potential improvements for investors' protection. First, the listing firm must embrace the SEC standards and regulations. Second, investors gain "effective and low-cost remedies that are not available in the firm's home jurisdiction" (p. 1780). Third, the firm is now obliged to superior financial information disclosure and must adjust its accounting principles to the US GAAP when setting up its financial statements. Forth, the firm increases its involvement with highly skilled financial intermediaries such as underwriters,

auditors, debt rating firms, and analysts. This will force, or bond, the firm to comply with additional requirements that are not strictly legal and yet are at least as important for well-functioning financial market. Finally, in addition to general SEC regulations, the firm must complete the specific requirements of the targeted exchange market. This implies supplementary obligations that will further contribute to investors' protection.

The bonding theorem suggests stronger value creation for companies from emerging countries, due to the significant differences in corporate governance regulations and accounting standards as reported by Miller (1999), Switzer (1986) and, Foerster and Karolyi (1999). Yet, other researches show a clear motivation for firms within developed markets, such as in the case of European companies, to cross-list. In fact, Wojcik et al. (2004) show that most of the European firms that cross list to US markets follow stricter corporate governance regulation than their domestic peers. A possible explanation is that these companies face lower barriers and costs to comply with US regulations. Nevertheless, these companies are expected to benefit from the cross-border listing in the form of broader awareness and enhanced liquidity.

To conclude, the theorems suggest that as companies deepen their involvement in the US stock markets, from level I to level III or direct listing, their abnormal returns as well as their value increase. The reasoning is clear, level I facility does not require considerable information disclosure upgrading or any other bonding outcome. However, Level II and level III facilities require significant information disclosure, corporate governance changes, and other bonding actions. Accordingly, level III and direct listing yield the strongest positive market reaction to the announcement of credible US listing preparation. The following section introduces the Sarbanes Oxley Act of 2002 and focuses on its key requirements with regard to domestic and foreign companies.

After discussing the alternative ways of listing abroad and the impact of going public on a foreign exchange on companies' valuation, the next section presents the major requirements of the Sarbanes-Oxley Act of 2002 and theirs potential different implications for domestic firms and foreign issuers.

2.4 Sarbanes-Oxley Act of 2002

2.4.1 Introduction

The US Securities and Exchange Commission introduced the Sarbanes-Oxley Act to the US stock markets on 30th July 2002. It imposed resolutions on all domestic as well as foreign SEC reporting companies. During the introductory phase of the Act, attempts were made to exclude foreign firms from the requirements without any success. In particular, foreign firms did not enjoy any added flexibility as per the implementation time frame (Piotroski and Srinivasan, 2008).

The introduction of SOX came as a reaction to a wave of financial scandals in the years prior to 2002 that carried nametags such as the Enron, WorldCom, Adelphia, Merck and Qwest. The increased occurrences of such scandals and the implied costs to investors induced a great loss of confidence in the global financial markets. Consequently, many investors started filing lawsuits, seeking reimbursement to the losses imposed from securities frauds. This confirmed the suggestion by different studies to increase the involvement of regulators in the securities markets. In particular, La Porta et al. (2002) find that stock markets' development correlates with law enforcement and reforms. In other words, a well-functioning financial market will be a market that is effectively regulated, as opposed to a set up that is exclusively determined by market forces.

The Sarbanes-Oxley Act is a set of regulations and rules assembled in two separate bills. The first was introduced by US congressman Michael D. Oxley and the second was introduced by US Senator Paul S. Sarbanes. The Act was subsequently approved by the US Senate and later by the US president. Different studies that have investigated the effects of the SOX on the US market claim that it differs considerably from prior analogous legislative documents. Firstly, the Act came as a response to financial statement frauds that were conducted by individuals in well-known corporations. Secondly, there were significant evidences for insufficient financial reports' transparency with the increasing use of off-balance-

sheet transactions. Thirdly, the new regulations are focused on improving corporate governance and audit features, in addition to financial disclosure functions. Fourthly, the new regulations have increased drastically the CEO and CFO criminal liability for the quality and precision of financial statements and disclosures (Smith, 2007). Finally, Rezaee and Jain (2006) conclude that this act was aimed at:

> "Improving corporate governance, enhancing the quality of financial reports, promoting audit effectiveness, creating the Public Company Accounting Oversight Board (PCAOB) to regulate the auditing profession, and increasing criminal and civil liability for violations of security laws" (p. 632).

Rezaee and Jain (2006) also argue that the two main objectives of this act were (1) to identify plausible conflicts of interests between investors and management and supervise them in a way that allows investors to enforce their rights. This improves corporate governance by aligning the incentives of both the controlling groups and other shareholders. And (2), to set up the right incentives and legal consequences for those engaged in issuing financial statements. The rationale behind it is that by realizing their expertise responsibilities, the responsible individuals should positively "affect the superiority, credibility and transparency of financial information as well as the quality and objectivity of auditing" (Rezaee and Jain, 2006, pp. 634-635).

In relation to the effects of the enactment of the SOX on foreign companies listed on the US stock markets, Piotroski and Srinivasan (2008) summarize different studies which examine the bonding hypothesis and suggest that the Act "should strengthen the credibility of US listings as a bonding mechanism, thus increasing the expected benefits from a US listing" (p. 385). The main reasoning behind this suggestion is that firms with poor legal and regulatory requirements in their home markets can communicate their high quality by listing on foreign markets with stricter regulations. This is in line with the theory of La Porta et al. (2006) which advocates for the importance of law on a well-functioning financial market and

suggests that the introduction of the SOX implies even stricter corporate governance and accounting requirements for foreign issuer in the U.S, and, therefore, even stronger signaling effect.

In order to get a deeper understanding with regard to the implications of the Act a review of the major requirements and objectives of the Act as presented in the following subsection following a review essay by Ernst & Young (2003)[13]:

2.4.2 The SOX's Objectives

The following section describes the Sarbanes-Oxley Act's objectives and matches each objective with its relevant issues and legislation rules.

2.4.2.1 Reporting- Upgrade Disclosures

- **Management Certification -**

In order to improve disclosure practices, section 302(a) and its amendments in section 404 of the Act state that both the chief executive officer and chief financial officer of the reporting firm are required to certify each quarterly and annual report. By certifying the reports the executives declare that the reports in question contain all material facts and do not include any false statement. Also, the certifying executives must state that the firm is fully following the required disclosure procedures such that all information subject to disclosure in SEC reports is reported within the specified period. Moreover, the certification indicates that all control deficiencies, significant deficiencies, and material weaknesses have been reported to the auditors and audit committee. Hammersley et al. (2008) classify these three misstatements according to their increasing probabilities and magnitudes respectively. According to the authors, up to that time, reporting internal control weaknesses were required solely when auditors changed.

[13] Retrieved 12 May 2013 from http://www.ey.com/Publication/vwLUAssets/The_Sarbanes-Oxley_Act_at_10_-_Enhancing_the_reliability_of_financial_reporting_and_audit_quality/$FILE/JJ0003.pdf

As a result, management certifications are incorporated into the process of financial reporting, which significantly increases the CEO involvement and responsibilities in the issues of disclosure. Furthermore, the increasing accountability of the CEOs reinforces better management control of accounting issues across all relevant individuals in the organization. In addition, these changes enhance the engagement of management and audit committee with external auditors.

- **Evaluation of Internal Controls -**

Under section 404 of the Act, management of public company is required to "report on the effectiveness of the company's internal control over financial reporting" (Ernst & Young, 2003, p. 6). Additionally, management assertion must be attested and reported by the company's independent auditor. Furthermore, both of the reports are to be integrated into the firm's annual report. Thus, managements are responsible to a sound internal-control while auditors are responsible to "attest to the soundness of management's assessment and report on the state of the overall financial control system" (Wagner and Dittmar, 2006, p. 133).

- **Off-Balance Sheet and Pro Forma Disclosures -**

The requirements of section 401 state that all off-balance sheet transactions, obligations and other relevant information, including non-GAAP financial information must be disclosed in the quarterly and annual reports. This section was introduced to prevent companies from hiding valuable information from investors in the form of off-balance sheet transactions and is a direct result of the renowned scandals which led to the enactment of SOX.

- **Real time Issuer Disclosures -**

Section 409 requires companies to report financial condition alterations as well as operation changes within two business days. This positively affected the number of reported corporate events under Form 8-K filing (Ernst & Young, 2003).

2.4.2.2 Roles- Strengthen Corporate Governance

- **Auditor communications and Audit Committees -**

The Act enhances the communication between the company's audit committee and its independent auditor. Section 204 states that auditors must report to the audit committees all critical accounting policies and practices, all substitute treatments including their implications with respect to the preferred treatment, and any additional written material regarding financial statements (Ernst & Young, 2003).

Thus, this section promotes more frequent and lengthy interactions between external auditors and audit committees. Consequently, it implies a change in the relationship and procedures between these two complementary monitoring bodies.

- **Audit committee standards –**

Section 301 aims at regulating the audit committee listing requirements where the main objective is to promote higher independency and better quality of audit committees. Under this legislation, audit committee members must be part of the board of directors and independent. Defond et al. (2005) define independent directors as "outside directors with no current or recent business affiliation with the company" (p. 185). However, the question of independency remains highly disputed among scientists and practitioners. Section 301 also declares that the audit committee is the responsible body for the hiring, remuneration, retention, and supervision of the work of the auditor. Moreover, the audit committee is responsible for the process of managing complaints regarding accounting issues. Also, the audit committee is encouraged to include a financial expert defined as an individual holding "accounting expertise, or any experience in supervising employees with financial responsibilities and overseeing the performance of companies" (Dhaliwal et al., 2007, p. 1). Moreover, the Act also requires companies to provide the audit committee with the necessary funding that the committee deems for compensation to auditors, fees for external advisors and payment of the audit committee expenses (Ernst & Young, 2003).

Accordingly, audit committee members are more independent and better serve their intermediate role between management and auditors. Also, members of the audit committee identify the importance of financial and accounting knowledge.

Furthermore, under section 407, the reporting firm must disclose whether its audit committee contains a financial expert. The question whether it should disclose all its financial experts or only a threshold of one remains subject to company's decision.

2.4.2.3 Relationships- Intensify Auditors Independence

- **Prohibition of Certain Services by Auditors -**

To facilitate greater auditor independence, section 201 specifies eight categories of non-audit services that are prohibited to be provided by the company auditor. In other words, an external auditor cannot offer other non-audit services to the company while serving as its auditor. However, it is important to mention the majority of these non-audit services were already forbidden prior to the introduction of SOX. Zhang (2007) argues that the ban on additional non-audit services was set to keep intact auditor independence and to decrease the "economic bond between the auditor and the client" (p. 81). Nonetheless, the author mentions a counter argument made by Schroeder and Hamburger (2002) concerning the benefits of knowledge gain through providing other non-audit services.

Furthermore, the following section, namely section 202, states that all services provided by the auditor must be preapproved by the audit committee.

- **Audit Partner Rotation-**

Another measure adopted by the Act is the five year mandatory rotation of "the lead audit partner as well as the responsible for reviewing the audit concurring to rotate off the audit every five years" (Ernst & Young, 2003, p. 12). Also, a five year respite is required before those agents are permitted to obtain another role subject to

rotation at the same company. This again empowers the audit committee as the selection of new partners every five year increases the importance of the audit committee.

- **Restrictions on Company Hiring of Audit Team Members-**

Section 201 sets a cooling-off period of one year for an employee of the audit firm who was part of the auditing team. This is imposed on any auditing related position in the hiring company. In addition, section 303 prohibits officers or others acting on their behalf to influence, manipulate or misinform any independent auditor. Yet, these actions do not include effective debate on accounting and auditing issues as well as genuine and sensible inaccuracies.

2.4.2.4 Enforcement- Increase Oversight

- **Public Company Accounting Oversight Board Authority**

With the purpose of enhancing enforcement, the Public Company Accounting Oversight Board (PCAOB) was created under section 101 & 102 by SOX intended "to oversee the auditors of public companies in order to protect investors and the public interest by promoting informative, fair, and independent audit reports" (PCAOB)[14]. Thus, a private sector, non-profit corporation was formed to oversight externally and independently auditors of US public companies that were beforehand only self-regulated. The following paragraph sheds light on the organization duties and responsibilities.

> 'The PCAOB has authority to investigate and discipline registered public accounting firms and persons associated with those firms for noncompliance with the Sarbanes-Oxley Act of 2002, the rules of the PCAOB and the Securities and Exchange Commission,

[14] Retrieved from the PCAOB website - http://pcaobus.org/About/Pages/default.aspx on April 14 2013

and other laws, rules, and professional standards governing the audits of public companies' (PCAOB)[15].

Section 109 sets the funding mechanism of the PCAOB according to which a large part of the PCAOB budget is financed by issuing companies in the form of annual fees. The amount of fees is calculated according to market capitalization, and, as such, increases the costs of listing on US capital markets.

- **Increases SEC Reviews of Public Filings**

The Act stipulates an increase in the frequency of SEC review of 10-Ks and 10-Qs reports. Specifically, according to section 408, company's 10-Ks and 10-Qs filings must be reviewed at least once in three years. This was set to increase the effectiveness of enforcement in the US. However, in addition to a well-functioning monitoring body, the SOX also aims at setting sanctions and penalties to discourage individuals from performing misconducts. These are summarized in the following subsection.

2.4.2.5 Penalties- Broaden Sanctions

- **Forfeiture of Certain Bonuses and Profits**

In case of financial report restatement that takes place within 12 months of the report publication due to misconduct of securities laws and regulations, section 304 requires that the reporting company's CEO and CFO will pay back "certain bonuses received and profits realized on the sale of securities following the financial report" (Ernst & Young, 2003, p. 3).

Overall, the introduction of the SOX involves higher direct and indirect costs for the foreign issuer. Firstly, there are additional auditing and controlling charges such as appointing independent members to the Board of Directors (Rezaee and Jain,

[15] ibid

2005). Secondly, corporate executives are required to spend more time than before on regulation compliance and they will do so at the expense of the running the business. Thirdly, more disclosure costs weights on the decision of going public. Fourthly, more parties are required to certify or sub-certify the financial reporting. Fifthly, internal control and reporting costs have increased significantly. In particular, Rezaee and Jain (2005) argue that the costs of compliance with the Act range from $1 million to more than $10 million in 22% of the investigated companies. Moreover, Smith (2007) presents a survey that assesses an increase of 142%, from $1.2 million to $2.9 million, in the average annual costs of being public for companies with annual revenues below $1 billion as a result of the SOX.

The analysis of costs and benefits suggests that firms react either positively or negatively to the enactment of SOX according to their net gain. If the benefits of the Act surpass its costs, shareholders' value will increase and the company will find it favorable to list on the US stock markets. La Porta et al. (1998) find that the companies which will benefit the most from cross-listing to markets with stricter regulations are those with highly concentrated and poorly regulated domestic market. However, when the benefits from SOX do not outweigh the costs, the companies will choose to deregister their securities and will choose the cheaper alternative of be traded OTC (Leuz et al., 2008). This would be the case for companies with well-established accounting regulations in their domestic market. Hence, the "bonding" gain from cross listing is relatively small.

2.5 IPO activity around the world

This subsection provides an overview of the evolution of the IPO activity over time and across countries with a specific focus on US markets. In their study on global IPO activity in 1990-2007, Doidge et al. (2011) document 29,361 IPOs from 89 countries with a total of around $2.6 trillion capital raised (adjusted to 2007 US dollars). As Table 2.1 shows, between 1990 and 2007 the total number of US IPOs is 6,126 out of a total of 29,361 globally (that is 22%). In offerings size, the total IPOs

capital raised in the US is about $650 billion (adjusted to 2007 US dollars), which is about 25% of the total capital raised in IPOs globally. However, the authors point out on a relative reduction in the economic dominance of the US in the total IPO share, thought overall US firms have kept their high ranking. Specifically, they shows a decrease in the share of US IPOs to total IPOs from 27% in during the 1990s to about 12% during the 2000s but at the same time their relative size has increased from 27% of world GDP to an average of 30%. This trend is further supported by a recent report on global IPO trends by Ernst & Young (2012)[16] that documents 108 US IPOs which are about 8.8% of the total of the global IPOs in 2011 with US being the only third in ranking preceding by China (first) and Poland (second), as shown in Table 2.2.

As to the share of capital raised, the report provides evidence of the US being second with around $35 billion which is about 21% of the global IPO proceeds in 2011. The data is presented in Table 2.3. Furthermore, a report on the cross-border IPO trends by PWC (2012)[17] documents similar findings and indicates that "the center of IPO activity is gradually shifting towards Asia-Pacific" (p. 8).

The distribution within industries with regard to global IPOs is another interesting issue to explore. As reported in Table 2.4, the Ernst & Young (2012)[18] report shows that between 2010 and 2011 the Materials industry has produced the majority of total IPOs globally. This evidence is in line with the finding of the PWC (2012) report that documents similar evidence in cross-border IPOs between 2007 and 2011. The major differences between the two reports come from the Oil & Gas (Energy) industry that seems to be more important when it comes to cross-border IPOs.

[16] The Global IPO Trends 2012 report of Ernst & Young (2012) had been retrieved from http://www.ey.com/Publication/vwLUAssets/Global_IPO_trends_2012/$FILE/Global_IPO_trends_2012.pdf on 6 July 2013

[17] The Cross-Border IPO Trends 2012 report of PWC (2012) had been retrieved from http://www.pwc.com/en_GX/gx/audit-services/ipo-centre/assets/pwc-cross-border-ipo-trends.pdf on 6 July 2013

[18] The Global IPO Trends 2012 report of Ernst & Young (2012) had been retrieved from http://www.ey.com/Publication/vwLUAssets/Global_IPO_trends_2012/$FILE/Global_IPO_trends_2012.pdf on 6 July 2013

Table 2.1: IPO activity for top 25 countries around the world between 1990 and 2007

	All IPOs		Domestic IPOs		Global IPOs		Only Global
Country	**Count (rank)**	**Proceeds (rank)**	**Count**	**Proceeds**	**Count**	**Proceeds**	**Proceeds**
Panel A:							
US	6,126 (1)	$647.7 (1)	4,931	$352.3	1,195	$295.4	$61.6
India	4,867 (2)	$32.2 (18)	4,777	$17.8	90	$14.4	$12.5
Japan	2,234 (3)	$204.1 (3)	2,130	$135.2	104	$68.9	$22.1
Canada	2,225 (4)	$68.6 (9)	2,020	$47.7	205	$20.9	$15.2
China	1,764 (5)	$254.6 (2)	1,300	$110.1	464	$144.5	$133.1
UK	1,650 (6)	$196.3 (4)	1,356	$77.1	294	$119.2	$68.9
Australia	1,558 (7)	$76.3 (8)	1,400	$34.4	158	$41.9	$18.8
Hong-Kong	822 (8)	$63.6 (10)	541	$12.9	281	$50.7	$43.6
Taiwan	822 (9)	$27.1 (19)	808	$25.5	14	$1.6	$1.5
South-Korea	779 (10)	$58.2 (11)	752	$46.1	27	$12.1	$10.5
France	750 (11)	$122.3 (5)	503	$9.7	247	$112.6	$54.3
Germany	573 (13)	$106.6 (6)	288	$27.6	285	$79	$45
Singapore	488 (14)	$20.3 (22)	404	$7.9	84	$12.4	$10.5
Thailand	408 (15)	$22.9 (21)	333	$11.0	75	$11.9	$6.5
Indonesia	273 (16)	$20.3 (23)	189	$5.0	84	$15.3	$9.9
Italy	244 (18)	$84.2 (7)	54	$9.7	190	$74.5	$32.4
Norway	179 (20)	$18.6 (25)	123	$6.7	56	$11.9	$8.6
Sweden	143 (23)	$33.9 (17)	53	$3.4	90	$30.5	$17.3
Brazil	128 (24)	$39.3 (15)	60	$14.9	68	$24.4	$23.3
Netherlands	120 (25)	$39.6 (14)	26	$4.1	94	$35.5	$28.2
Panel B:							
Malaysia	722 (12)	-	697	-	25	-	-
Pakistan	249 (17)	-	247	-	2	-	-
Greece	185 (19)	-	148	-	37	-	-
Poland	175 (21)	-	133	-	42	-	-
Israel	155 (22)	-	13	-	142	-	-
Russian Fed.	-	$43.6 (12)	-	$13.9	-	$29.7	$29.7
Spain	-	$41.5 (13)	-	$3.2	-	$38.3	$18.4
Switzerland	-	$37.1 (16)	-	$9.6	-	$27.5	$20.2
Bermuda	-	$26.5 (22)	-	$0.1	-	$26.4	$26.4
Mexico	-	$18.6 (24)	-	$6.7	-	$11.9	$8.6
Total: top 25	27,639	$2,305	23,286	$165	4,353	$1312	$729
Other countries	1,722	$250	836	$84	886	$165	$129
All countries	29,361	$2,555	24,122	$1078	5,239	$1477	$858

Note:
The table lists the top 25 countries based on both total IPO count and total proceeds as presented in Table 2 of Doidge et al. (2011). Domestic IPO proceeds do not include proceeds raised in the domestic tranche of global IPOs. For global IPOs the panel reports total proceeds raised in global IPOs (proceeds raised in the domestic and international tranches) and global proceeds raised in global IPOs (proceeds raised in the international tranches only). Panel A lists the countries that are included in the top 25 countries of both total IPO count and total proceeds with their ranking in each category. Panel B lists the countries that are included in the top 25 of only one category and its rank in that category. Proceeds are in constant 2007 US dollars (billions).

Table 2.2: IPO activity for top 10 countries around the world in 2011

	2011	
Country	**Count (rank)**	**Proceeds (rank)**
Greater China	388 (1)	$72.3 (1)
Poland	137 (2)	$2.7 (9)
US	108 (3)	$36.0 (2)
South Korea	69 (5)	$3.6 (7)
Canada	64 (6)	$2.4 (10)
Australia	98 (4)	-
India	40 (7)	-
Japan	37 (8)	-
UK	28 (9)	-
Indonesia	26 (10)	-
Switzerland	-	$10.0 (3)
Spain	-	$5.3 (4)
Russian Fed.	-	$4.7 (5)
Brazil	-	$4.4 (6)
Italy	-	$3.0 (8)
Total: top 10	995	$2,305
Other countries	230	$250
All countries	1,225	$2,555

Note:
The table lists the top 10 countries based on both total IPO count and total proceeds as presented in Figure 5 of a report by Earnest & Young (2012). Proceeds are in constant 2012 US dollars (billions).

Table 2.3: Global IPO activity world between 1990 and 2007

	All IPOs		Domestic IPOs		Global IPOs		Only Global
Year	**Count**	**Proceeds**	**Count**	**Proceeds**	**Count**	**Proceeds**	**Proceeds**
1990	303	$29.6	248	$18.5	55	$11.1	$8.8
1991	891	$71.7	804	$37.9	87	$33.8	$20.5
1992	1,337	$60.8	1,211	$35.5	128	$25.3	$10.6
1993	2,078	$150.2	1,860	$92.1	218	$58.2	$28.8
1994	2,739	$157.7	2,474	$77.7	265	$80.0	$43.2
1995	2,688	$116.4	2,433	$47.1	255	$69.3	$37.3
1996	3,100	$168.8	2,766	$81.7	334	$87.1	$45.2
1997	1,959	$179.8	1,580	$69.8	379	$110.0	$49.2
1998	1,232	$138.2	922	$32.6	310	$105.6	$39.8
1999	1,589	$210.0	1,006	$59.3	583	$150.7	$63.2
2000	2,117	$242.2	1,452	$51.8	665	$190.4	$94.0
2001	971	$108.1	798	$35.7	173	$72.4	$32.1
2002	914	$76.5	809	$46.7	105	$29.7	$13.4
2003	910	$59.1	809	$34.8	101	$24.3	$15.2
2004	1,529	$133.8	1,279	$62.2	232	$71.6	$45.1
2005	1,473	$149.4	1,223	$82.6	250	$66.8	$52.4
2006	1,679	$223.7	1,314	$121.6	365	$102.1	$89.8
2007	1,850	$278.6	1,116	$89.9	734	$188.7	$169.4
Total	29,361	$2,554.6	24,122	$1,077.5	5,239	$1,447.1	$858.1

Note:
The table lists distribution in years for both the total IPO count and total proceeds as presented in Table 1 of Doidge et al. (2011). Domestic IPO proceeds do not include proceeds raised in the domestic tranche of global IPOs. For global IPOs the panel reports total proceeds raised in global IPOs (proceeds raised in the domestic and international tranches) and global proceeds raised in global IPOs (proceeds raised in the international tranches only). Proceeds are in constant 2007 US dollars (billions).

Table 2.4: IPO activity for top 5 industries between 2009 and 2011

2009		**2010**		**2011**	
Number of Deals	Capital Raised	Number of Deals	Capital Raised	Number of Deals	Capital Raised
Industries (101)	Industries ($23.2)	Materials (307)	Financials ($80.0)	Materials (268)	Materials ($29.2)
Materials (96)	Financial ($22.6)	Industries (236)	Industries ($57.6)	Industries (199)	Industries ($26.4)
Hi-Tech (59)	Energy ($12.1)	Hi-Tech (180)	Materials ($38.5)	Hi-Tech (149)	Energy ($21.3)
Con. Products (49)	Real Estate ($10.8)	Con. Products (113)	Energy ($23.2)	Con. Products (124)	Financials ($15.9)
Financials (46)	Materials ($7.2)	Energy (94)	Hi-Tech ($20.7)	Financial (110)	Hi-Tech ($14.7)

Note:
The table lists the top 5 industries based on both total IPO count and total proceeds as presented in Figure 2 of a report by Earnest & Young (2012). Proceeds are in constant 2012 US dollars (billions).

Doidge et al. (2011) argue that the trends in the IPOs evolution described above are primary due to the significant growth of IPOs in other countries along with a lower IPO activity by US firms. The authors provide two possible explanations for that phenomenon. The first possible explanation is that the gap between foreign countries and the US has decreased and consequently their IPOs rates have become more similar to those of US. A second possible explanation is that firms are now facing new ways to avoid being affected by institutional hurdles. One of those new ways is the choice to go public in global markets and avoiding the constraints associated with their domestic markets. Doidge et al. (2011) also call attention to the fact that besides the growing activity of IPOs around the world, there has been a considerable increase in global IPOs, "which include both IPOs in which some of the shares are sold outside the home country of the firm going public, and foreign IPOs in which of all the shares are sold outside the home country" (p. 1).

As Table 2.3 reports, the group of global IPOs accounts for about 60% of the total IPO proceeds in the late 2000s, which is a significant increase from early 1990s. Doidge et al. (2011) report similar trends between domestic and global IPOs around the world; with an annual increase from 1990 to a peak of 3,100 in domestic IPOs and 344 in global IPOs in 1996. This is followed by a more volatile count, with the number of IPOs falling to merely 910 domestic IPOs and 101 foreign IPOs in 2003. However, from 2003 to 2007 there had been a steady growth in both domestic and global IPOs with a considerable higher increase in global IPOs compared to domestic IPOs. Different studies suggest that the increase in global IPOs can be explained by the fact that this allows firms to mitigate potential adverse effects of poor home country institutions (Shleifer and Wolfenzon, 2002; Doidge et al., 2007; Stulz, 2009). In terms of proceeds, there had been a rise in total capital raised in the 1990s with a peak of $240 billion in 2000 (adjusted to 2007 US dollars). However, the share of global IPOs proceeds to total is increasing significantly across all period to a share of 68% in 2007. More interestingly, when focusing only on global IPOs with no domestic listing (so only listing capital on foreign markets instead of completing a multiple listing that includes the domestic capital market), the figures show a share of

a count of 40% to total IPOs but a share of capital raised of about 61% in 2007. This could indicate that the larger firms tend to list abroad with larger offering size.

Doidge et al. (2011) find a positive and significant relation between the level of domestic IPO activity and the quality of the national institutions. They also find that countries with weaker institutions have higher rates of firms with global activity and so these firms go public in foreign markets to overcome the constraints set by their domestic markets. These findings are in line with the Stulz (2009) who argues that the ability of entrepreneurs to maximize their proceeds from offerings is highly conditioned credibility of disclosure commitments. Interestingly, a report on cross-border IPO trends by PWC (2012) [19] points out that in the context of cross-border IPOs there are major differences between the infrastructure, technology, regulation and governance development rates of exchanges in emerging markets with Singapore and Hong Kong serving as regional cross-border hubs for IPOs from the Asia-Pacific region. The report also points out on China being a key originator of cross-border listings, with about 20% of IPOs completed overseas between 2002 and 2011. India and Brazil, however, have the lowest proportion of cross-border IPO activity relative to their size. In terms of location preferences, PWC (2012) report shows that there is a higher IPO intra-regional than inter-regional activity with 631 intra-regional listings out of a total of 1,174 IPOs in total between 2002 and 2011. Furthermore, the EMEA region experienced the highest intra-regional IPO activity with 335 intra-regional IPOs out of 421 IPOs in total for the same period. On the other hand, the Asia-Pacific region shows the highest inter-regional activity between 2002 and 2011. The inter-regional relations show some clear trends; issuers from the Russian Federation and Commonwealth of Independent States (CIS) show a strong relationship with London with more capital raised there ($47.2 billion) than capital raised in the local markets ($47.2 billion vs. $8.1 billion, respectively). The report by PWC (2012) also finds that changes in regulations and listing rules are key factors in

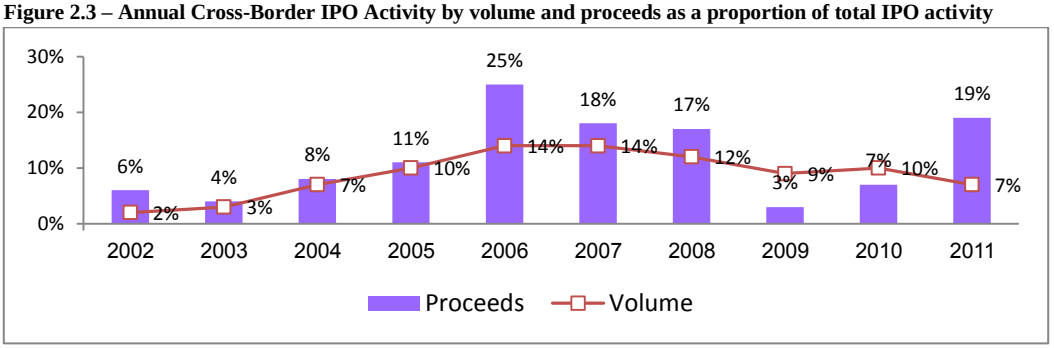
[19] The Cross-Border IPO Trends 2012 report of PWC (2012) had been retrieved from http://www.pwc.com/en_GX/gx/audit-services/ipo-centre/assets/pwc-cross-border-ipo-trends.pdf on 6 July 2013

setting cross-border IPO activity. In fact, uncertain regulatory environment has been argued to be the main concern than issuers have with regard to listing on an emerging market exchange. However, these are not limited to emerging markets as regulatory changes such as the Sarbanes-Oxley Act have influenced cross-border activity (PWC, 2012). The motivations of listing abroad with a specific consideration to US markets are presented in section 2.3 of this thesis. In addition, the influences in the foreign IPOs setting in the US are further explored in the following empirical chapters of this thesis. Figure 2.3 follows the annual cross-border IPO activity by volume and proceeds as a proportion of total IPO activity, and Table 2.5 summarizes the IPO activity between the top ten issuing countries and the top ten destinations.

Finally, as Figure 2.4 shows an increase in the use depositary receipts (DRs) over the last 20 years. The report by PWC (2012) suggests that the main reason for this increase is the fact that this form of offering provides "a mechanism for lowering the risk of alternative trading on local exchanges and providing efficient investments in different markets" (p. 24).

The increase in the number of foreign IPOS in the US has promoted interest in studying the specific characteristics of these companies (Bruner et al., 1999, 2004; Doidge et al., 2009). However, not much is yet known with regard to the relation between the reporting quality, underpricing and aftermarket stock performance, and the soundness of home legal environment of these firms. The next chapter is the first empirical chapter in this thesis. It addresses the information asymmetry problems of foreign IPOs in the US with respect to the reporting quality in the fiscal year preceding the IPO by investigating the impact of home country institutions on earnings management.

Figure 2.3 – Annual Cross-Border IPO Activity by volume and proceeds as a proportion of total IPO activity



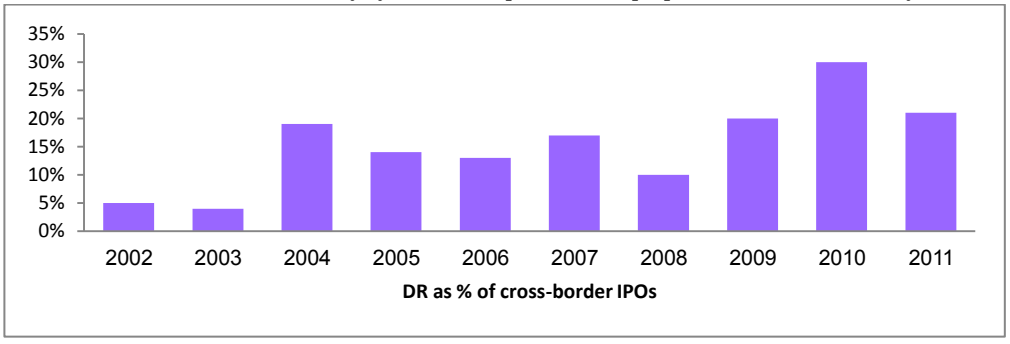
Source: The Cross-Border IPO Trends 2012 report of PWC (2012)

Table 2.5: Cross Border IPO activity between the top ten issuing countries and the top ten destinations between 2002 and 2011

	Australia	Canada	France	Germany	Hong Kong	Poland	Singapore	South Korea	UK	US	**Total Top 10**	**Total Outbound**	**Total Domestic**
Australia		5					1		23	1	30	30	745
Canada	1				1	1			24	10	37	40	1,219
China	8	2	8	14			130	8	34	134	338	347	1,358
Germany					1				7	2	10	12	178
Hong Kong		2	2				26	5	11	8	54	55	238
India							3		32	3	38	38	416
Ireland									30	2	32	32	2
Israel							1		17	19	37	37	76
Russia				1	2				45	4	52	54	30
US	5	17		1	1			1	62		87	99	1,353
Total top 10	14	26	10	16	5	1	161	14	285	183			
Total Inbound	30	37	18	30	19	20	183	16	480	264			
Total Domestic	745	1,219	202	178	663	512	268	717	934	1,353			

Note:
The table lists distribution in years for both the total IPO count and total proceeds as presented in Figure 3 of the PWC (2012) report.

Figure 2.4 – Annual Cross-Border IPO Activity by volume and proceeds as a proportion of total IPO activity



Source: The Cross-Border IPO Trends 2012 report of PWC (2012)

CHAPTER 3

EARNINGS QUALITY IN FOREIGN IPOS IN THE US: THE ROLE OF HOME COUNTRY INSTITUTIONS

Chapter 3:
Paper 1- Earnings Quality in Foreign IPOs in the US: The Role of Home Country Institutions

3.1 Introduction

Corporate governance researchers have long argued that by improving transparency and quality of reporting firms can enforce governance constraints on managerial discretion and opportunism. It has been further argued that requiring high-quality reporting can be harnessed to mitigate agency problems that cannot be reduced otherwise (Stulz, 2009). Prior research, however, indicates that even in the presence of high-quality reporting standards the ability to manipulate accounting numbers by managers may be influenced by economic, legal and political institutions.

More specifically, studies based on the "bonding hypothesis" suggest that firms can reduce or avoid altogether the negative effect of less developed institutions in their home countries on their costs of capital by listing in overseas markets with more developed institutions. In doing so, they "bond" to the host country's legal institutions (Coffee, 1999; Stulz, 1999). In the extreme case, by issuing securities exclusively in the US, foreign firms may credibly commit to the US disclosure and enforcement rules. In terms of complying with reporting standards, this presumably makes them like any other US firm. Also, being seen as a local firm, foreign IPOs should be monitored and treated by US regulators and courts just as US IPOs. These arguments support the idea of irrelevance of home institutions for foreign IPOs' reported numbers.

Though many tend to believe that monitoring and enforcement standards are very tight in the US, there has been a debate in the legal, finance and accounting literatures about the effectiveness of regulation of foreign registrants in the US

studies such as Licht (2003), Siegel (2005), Lang et al. (2006) (hereafter LRW), and Licht et al. (2011) have cast doubt that the SEC has been willing and able to monitor foreign registrants. Therefore, it is not clear whether an IPO in the US necessarily entails a commitment to higher reporting standards. Specifically, it is possible that IPOs from countries with strong legal institutions select the US to *avoid* more stringent environments (Licht, 2003; Stulz 2009). This selection can be further beneficial if investors perceive them to be of high reporting quality and so spare them close scrutiny. On the other hand, investors in IPOs from countries with weak investor protection are likely concerned about high level of earnings management and information asymmetry, especially if adequate enforcement mechanisms available to them in the US or the IPO's home country are lacking. It is therefore imperative for these firms to commit themselves to higher-quality reporting to be able to reduce cost of capital.[20]

In this paper we compare measures of earnings management by foreign IPOs listed in the US to domestic US IPOs. We additionally compare measures of earnings management between foreign IPOs from countries with strong legal institutions and foreign IPOs from countries with weak legal institutions. Our paper extends LRW, who find that cross-listed firms manage earnings more than a matched sample of US firms. In addition they find that cross-listed firms from countries with weak legal institutions manage earnings more than firms from countries with strong legal institutions. They therefore conclude that "the SEC regulation does not supplant the effect of local environment" (p. 255).

We analyze foreign IPOs rather than cross-listed firms for two main reasons. First, the extant prior research has largely focused on cross-listing because it has been assumed that foreign IPOs are equivalent to US IPOs. Specifically, the typical, but

[20] In order for external investors to provide financing, their legal protection must be assured (Durnev and Kim, 2005; Chan et al., 2007). Doidge et al. (2007) posit that country institutions matter since they influence the costs that firms incur to comply with good governance and the benefits that accrue to them from doing so. Chen et al. (2009) find that the effect of firm level corporate governance on cost of equity is influenced by country-level legal protection of investors. More importantly, their study reveals that enhanced firm-level corporate governance has a significant negative effect on cost of equity capital in countries that provide relatively poor legal protection for its investors.

untested presumption by some commentators has been that foreign IPOs have taken a step further away from cross-listing or domestic listing and are thus free from the influence of home institutions (e.g., Coffee, 2002).[21] The second reason concerns the scrutiny effect in the IPOs market. It has been argued that, because IPOs involve cash raising, investors and the SEC devote more attention to IPOs than to cross-listed firms traded in the secondary market (Ndubizu, 2007; Dechow et al, 2010). The heightened scrutiny of IPOs by the SEC and other parties implies greater incentives for high quality reporting (Ball and Shivakumar, 2008). This suggests stronger incentives for adopting US-like reporting practices at the IPO stage than subsequent to the IPO (i.e., in the secondary market). The findings of LRW may be thus related to weaker scrutiny at a later stage and therefore not generalizable to the case of IPOs.

We collected a sample of 291 foreign IPOs from 35 countries from 1990 to 2009. Our measure of the strength of home legal institutions is the product of two country-level indices: the anti-director rights, based on the Spamann's (2010) revised measure of La Porta et al. (1998), and country-specific measure of enforcement based on the International Country Risk Guide (ICRG) Law and Order index. This approach to capturing the strength of a country's institutions is motivated by the need to consider not only formal law, but also how it is enforced in practice (Durnev and Kim, 2005; Bruno and Claessens, 2010). An advantage of the ICRG index is that it is revised every year, unlike the anti-director rights index. We employ three models to calculate abnormal accruals whereby normal accruals are measured with respect to US IPO firms, controlling for time and industry effects. If earnings management in foreign IPOs is similar to that in US IPOs, we should find that abnormal accruals in foreign IPOs are not significantly different from abnormal accruals in US IPOs. Furthermore, if home institutions do not influence reporting choices of foreign IPOs,

[21] We note that the international accounting literature has found that as the strength of legal institutions varies from country to country so does the quality of earnings. Specifically, it has been found that quality of earnings increases with institutions in several cross-country studies (Ball et al., 2008; Leuz et al., 2003; Burgstahler et al., 2006; Ball and Shivakumar, 2005; Bushman and Piotroski, 2006; Boulton et al., 2011). Yet, relatively little is known about the residual influence of home institutions when firms either cross-list or avoid altogether their home countries by pursuing an IPO elsewhere.

we should not be able to detect statistically significant association between measures of the strength of home institutions and abnormal accruals.

We measure the level of earnings management in two ways. First, to capture the overall degree of misreporting by foreign IPOs we use absolute abnormal accruals from the three models. Higher absolute values correspond to more extreme reporting outcomes, and hence lower earnings quality. In addition, to assess whether misreporting is associated with aggressive or conservative reporting we use signed abnormal accruals. Importantly, we use hand-collected data from IPO prospectuses. This has the advantage, as Ball and Shivakumar (2008, p. 326) point out, that abnormal accrual measures are not affected by the subsequent use of the proceeds of the IPO.

Our main findings are as follows. First, we provide evidence that foreign IPOs manage earnings more than US IPOs. This suggests that the scrutiny effect differs between US IPOs and foreign IPOs. Second, we find that earnings management in foreign IPOs from countries with weak home institutions is similar or *lower* than foreign firms from countries with strong institutions. Our findings are in contrast to that of LRW who find more evidence of earnings management in cross-listed firms from countries with *weak* home institutions.

In all of our tests we employ multivariate regression design controlling for, among other things, leverage, auditor quality, ownership structure, effect of the Sarbanes Oxley Act (SOX), and threat of litigation.[22] With respect to these control variables, we find evidence that high insider ownership is associated with absolute abnormal accruals in IPOs from countries with weak home institutions, and that SOX constrains earnings management in these IPOs, but not in IPOs from strong home institutions countries. Additionally, the threat of litigation reduces earnings inflation in IPOs from countries with strong legal institutions, but not from countries with weak institutions. This is broadly consistent with some legal scholars' arguments that the foreign registrant's home countries security laws may matter as much if not more than US laws (e.g., Siegel, 2005).

[22] In doing so we depart from LRW and Ndubizu (2007) who do not control for these factors.

While our findings are in contrast with those of LRW, this may be attributed, at least in part, to the fact that cross-listed firms typically reconcile accounting number prepared under their domestic GAAP to US GAAP. These reconciliations may be more susceptible to the influence of home institutions, and they are generally of low quality (e.g., Amir et al, 1993). We take advantage of the fact that, though in our sample most firms report under US GAAP, some firms reconcile home GAAP to US GAAP, to examine if the results are robust to controlling for reconciliations. In additional analysis we rule out the possibility that reconciliations drive these findings. We further employ a range of sensitivity tests, including, among others, control for exchange membership, multi-listing and the LRW's classification of the strength of home institutions. Our results are robust to these tests.

These findings collectively support the notion that home institutions matter for reporting practices in foreign IPOs. That is, the corporate governance effect of home institutions is present in foreign IPOs. That IPOs from countries with strong institutions manage earnings more than IPOs from countries with weak institutions suggest that firms coming from countries with less developed institutions may try to alleviate US investors' concerns by enhancing their internal governance. Another possibility is that the SEC and other monitoring parties assume that IPOs from strong home institutions practice better reporting. This may lead to differential scrutiny effect, when the SEC, analysts, investors and potentially auditors may be imposing relatively more scrutiny at IPOs from countries with weak institutions, allowing other IPOs to engage more aggressively in earnings management.

We contribute to the growing literature on the impact of legal and economic incentives on reported outcomes in several ways. First, there are only a few papers that examine the link between home institutions and reporting quality in foreign registrants in the US, with Lang et al. (2003), and more closely to our paper, LRW being the notable exceptions. As foreign IPOs is a global and sizeable phenomenon, this paper expands our understanding of financial reporting aspects of this important economic activity. Specifically, we extend Lang et al. (2003) and LRW in that we look at a setting where prior research (e.g., Coffee, 2002) suggests that home

institutions should matter the least, if they matter at all. In other words, home institutions are expected to have little or no influence in this setting, as foreign IPOs in the US supposedly fully bypass their home country institutions. We provide evidence contrary to this prediction. Second, complementing LRW we provide evidence that indicates that compliance with US rules is not the same for foreign IPOs and cross-listed firms. Third, we highlight that reporting outcomes by foreign IPOs traded in the *same* market with *same* rules applied to all are not uniform and may depend on country of origin. This is important because of the perception that, by choosing to list in the US, most foreign firms circumvent the negative effects of weak home institutions and "trade up" the institutional environment.[23] Our evidence that IPOs from strong home institutions manage earnings more is consistent the notion that IPOs in the US constitute a "trading down" effect whereby these IPOs avoid tougher rules in their home countries (Licht, 2003). Interestingly, we observe that according to our index the US scores *below* many countries (but not all) that we classify as having strong legal institutions.[24] Hence we believe IPOs from countries with strong institutions may fit the trading down description (we provide additional evidence to that effect in Section 5.2). This also points to a possibility that the SEC and the wider investor community misperceive these IPOs and thus allow them to sneak under the scrutiny radar. Fourth, evidence provided here is useful for the debate on the validity of the "bonding hypothesis," which hinges on the presumed commitment to the US legal, reporting and enforcement environments (Coffee, 1999, 2002, and Stulz 1999, 2009 vs. Licht, 2003 and Siegel, 2005). To the extent that a foreign IPO in the US represents the most powerful form of bonding, our evidence suggests that even this may be insufficient to obtain credible disclosures at a level similar to US IPOs. Fifth, our paper is among the first to study earnings management in IPOs using data from prospectuses. Similar to Ball and Shivakumar (2008) it thus

[23] For example, Doidge at al. (2009, p. 426) unequivocally state: "…foreign firms listed in the United States face more constraints and potential enforcement actions than similar home-country firms that are not listed in the United States."

[24] As we explain later, our institutions index incorporates a recent revision by Spamann (2010), according to which the score for the US is well below the score computed by La Porta et al. (1998) or Djankov et al. (2008).

better captures the net effect of incentives that prompt earnings management to inflate IPO proceeds and counter-incentives to deflate earnings in the face of heightened regulatory scrutiny. Our findings are consistent with a different incentive mix for foreign IPOs in the US compared to domestic US IPOs.

The remainder of the chapter is organized as follows. In Section 3.2 we review related literature and how we extend it. In Section 3.3 we outline the research design. The sample is described in Section 3.4. The findings are reported in Section 3.5. , and Section 3.6 concludes.

3.2 Related Literature

The accounting literature has relatively recently started to investigate the role of institutions on reporting outcomes. For example, LRW compare reporting quality in cross-listed firms (ADR firms) to US firms and find evidence suggesting poorer reporting quality in foreign firms from weak investor protection environment. However, because LRW examine ADRs of already listed firms (as well as some IPOs), their evidence is not sufficiently clear with regard to the effects of US institutions at the transition stage to a public status stage within the organizational life-cycle. This event is likely characterized by different levels of information asymmetry, regulatory scrutiny and the nature of agency problems (Ball and Shivakumar, 2008). Ndubizu (2007) conjectures that foreign IPOs manage their earnings more than first-time ADRs because IPOs involve raising of cash, but first-time ADRs not. However, his evidence is inconsistent with this conjecture. He also finds that both foreign IPOs and first-time ADRs manage earnings more than mature US firms. The choice of mature US firms as a benchmark is questionable on two counts: First, the stage in the life-cycle and information asymmetry in IPOs vis-a-vis mature firms suggest different reporting incentives. Specifically, IPO firms being relatively unknown to the public can take advantage by managing earnings to a greater extent than mature firms. We therefore believe that a more relevant comparison is between foreign IPOs and US IPOs. Second, Ndubizu (2007, pp. 1011)

explicitly assumes – what may have been implicitly suggested by others - that foreign "firms face US information environments and their decisions to cross-list are not directly associated with home-country reporting." Our arguments in the Introduction suggest that this assumption should be challenged.

It has long been recognized that reporting quality is influenced by both the characteristics of the accounting standards a reporting entity has to follow and by reporting incentives associated with contracting arrangements. The literature has investigated the link between reporting incentives and country-level legal, political and economic institutions. In addition, it has attempted to assess the relative strength of accounting rules versus institutional-based incentives in explaining variations in cross-country reporting outcomes. For example, Ball et al. (2000) and Ball et al. (2003) provide evidence that reporting quality varies between civil and common law countries, and incentives related to regulation, taxation and litigation may cause variation in the quality of reported numbers. Leuz et al. (2003) highlight the impact of both legal and enforcement institutions on the quality of accounting earnings. Using a sample drawn from 31 countries they find that variations in earnings management are related to variations in institutions. Bushman et al. (2004) and Bushman and Piotroski (2006) examine how accounting conservatism varies across countries. They find that reporting conservatism varies with judicial systems, securities laws, political economy and tax regimes.

An important conclusion made within this literature is that the requirement to comply with similar accounting rules (e.g., IFRS or US GAAP) in different countries may still provide an ample scope for variation in reporting numbers in the cross-section of countries. However, a less explored question is what is the effect of home institutions on reporting quality when the reporting firm entirely subjects itself to another country's institutional setting? This is an important question bearing in mind that foreign listings represent a large population of firms in the US, UK and elsewhere. The aforementioned study by LRW advances our understanding of this issue by examining properties of reported numbers by cross-listed firms from 34 countries that many of which have been cross-listed for some time in the US and

report under home GAAP with 20-F reconciliations to US GAAP. To the extent that a cross-listing creates sufficiently strong commitment (bonding) to the US institutional environment and high disclosure standards (Coffee, 2002; Stulz, 2009), variations in the properties of reported numbers are not expected to be related to the variations in home institutions of these firms. However, this is not what LRW find.

One possible explanation for the findings by LRW that home institutions matter is that cross-listed firms' corporate governance environment is not entirely isolated from home institutions. After all, cross-listed firms still maintain "one foot" in their home countries. Many legal matters may still have to be resolved in the home country, especially when the interests of domestic shareholders are affected. Even US shareholders of cross-listed firms may need to rely on home securities laws (Siegel, 2005). More broadly, foreign firms may be conducting their business in a way that reflects underlying cultural and societal behaviors because their management and workforce are largely drawn from their home countries. This local embeddedness, in turn, may give rise to various agency problems that cannot be simply eliminated by a US listing.

A second possible explanation to the LRW's results is related to the very foundations of the bonding hypothesis. Licht (2000, 2003) points out that, unlike the assumption underlying bonding framework, legal remedies available to shareholders of foreign firms listed in the US are markedly weaker than those available to shareholders of US firms. He further posits that the motivation for US listing is somewhat different to what proponents of "bonding" claim: firms may seek an overseas listing because it provides access to cheap finance and enhancing issuers' visibility, not because they want to commit to higher corporate governance standards. Similar views are also expressed by Fanto (1996) and Siegel (2005).

A third possible explanation for the LRW's findings for cross-listed firms is that bonding is a valid theory in principle, but it is practically weakened by allowing cross-listed firms to report under domestic GAAP with poor-quality reconciliations (e.g., Amir et al, 1993). Consistent with that, LRW find weaker evidence of earnings management in cross-listed firms reporting under US GAAP (roughly 30% of their

sample). If reported numbers can be manipulated, then home-based incentives may influence their properties. In particular this can be the case when insider holding is significant in cross-listed firms (Leuz, 2006, and our own evidence). Because insiders may be embedded in their home countries, they respond to home-based incentives in shaping reported numbers.

We develop this literature in a number of ways. First, we look at foreign firms that list for the first time, and do so in the US IPOs are generally characterized by a high level of information asymmetry, which is compounded in the case of foreign firms. Prior research typically looks at cross-listed firms which have been providing financial information and were followed by analysts for some time. Ball and Shivakumar (2008) argue that market demand for high-quality information is stronger for IPO firms because of regulatory oversight and the high level of information asymmetry. Similarly, Ndubizu (2007) further argues the SEC pays more attention to IPOs. Therefore, one may expect stronger incentives of foreign IPOs to comply with US rules and ignore home institutions compared to mature cross-listed firms. This is particularly relevant when the foreign IPO lists only in the US as it does not need to satisfy more than one set of investors and regulators.[25] In other words, incentives to behave as "American firms" are expected to be significantly more pronounced in our sample. Therefore, the detection of any influence of home institutions should be regarded as strong(er) evidence of their economic significance and reach beyond country borders.

Second, prior literature on foreign listing in the US largely ignores the role of auditors, insider ownership, threat of litigation, the effect of SOX and similar factors influencing the quality of accounting information (e.g., Lang et al. 2003; LRW; Ndubizu, 2007; Boulton et al., 2011). In contrast, we control for these factors. Crucially, it helps alleviate concerns with regard to the lack of control for possible

[25] The majority of our sample firms are listed only in the US However, in Section 5.2 we conduct some additional tests to see if single-listing IPOs differ from multi-listing IPOs.

other explanations for earnings management in foreign IPOs in the US (Leuz, 2006).[26]

Third, we use financial data taken from the prospectuses, not from regulatory filing following the IPO. As Ball and Shivakumar (2008) stress, using post-IPO financial statements (as in Teoh et al, 1998 and Ndubizu, 2007) is problematic because the use of IPO proceeds for growth-oriented investment may bias measures of abnormal accruals. Fourth, we use the Spamann's (2010) revised index of anti-directors rights. As he notes, the corrected index fails to support previous findings that rely on the original La Porta et al.'s (1998) index, or even its more recent version (Djankov et al., 2008).

3.3 Research Design

3.3.1 Measuring Abnormal Accruals in Foreign IPOs

We evaluate the level of earnings management employing three widely used models of abnormal accruals. Across all models we measure normal accruals by estimating model parameters from a cross-section of US IPOs with the same 2-digit SIC code and same year as the foreign IPO. That is, we match each individual foreign IPO with a cross-section of US IPOs with the same industry membership and year-of-IPO. A minimum of 10 year-industry observations is required for the US cross-section. When this minimum number is not available we combine two years or three years, until the minimum number of observations is reached. We remove 1% on both extremes of each continuous variable (Ball and Shivakumar, 2008).

The first model of abnormal accruals, or discretionary accruals, is based on the Jones (1991) model, as modified by Dechow et al. (1995). We first calculate non-discretionary accruals using the following model applied to US IPOs:

[26] Firm ownership structure shapes insiders' reporting incentives and hence reporting quality (Fan and Wong, 2002; Haw et al., 2004; Ball and Shivakumar, 2005; Burgstahler et al., 2006). Fan and Wong (2005) show that hiring high-quality auditors can help to mitigate agency problems associated with high ownership concentration.

$$ACC_t = \beta_1(1/TA_{t-1}) + \beta_2 \Delta Rev_t + \beta_3 PPE_t + \varepsilon_t \qquad (3.1)$$

where accruals (ACC_t) is net income before extraordinary items (Compustat data item #123) plus depreciation and amortization (Compustat data item #124) minus operating cash flows (Compustat data item #308). TA_{t-1} is the lagged total asset (Compustat data item #6). ΔRev_t are changes between year *t* and year *t-1* in net sales (Compustat data item #12) scaled by total assets at the beginning of the year (TA_{t-1}). PPE_t is gross property plant and equipment (Compustat data item #7) scaled by TA_{t-1}.

This model differs from the original Jones (1991) model in that it adjusts for growth in credit sales. As credit sales are more susceptible to managerial discretion, this model yields residuals that are uncorrelated with expected revenue accruals to improve the detection of revenue manipulation (Dechow et al. 2010). We calculate the first abnormal accrual variable (*EM1*) for new foreign issuer firm in year *t* as the difference between the accruals reported by the foreign IPO and the predicted value of these accruals based on the coefficients in (1) as follows:

$$EM1_t = ACC_t - \left[\hat{\beta}_1(1/TA_{t-1}) + \hat{\beta}_2(\Delta Rev_t - \Delta Rec_t) + \hat{\beta}_3(PPE_t) \right] \qquad (3.2)$$

The expression in the square brackets represents the amount of accruals a foreign IPO is expected to report had it been a US IPO within the same industry, and in the same year. Hence *EM1* – as well as the other two measures presented below - is regarded as abnormal (or, discretionary) accruals whereby it is benchmarked against US IPOs' accruals.

The second measure of discretionary accruals is based on the method used by Ashbaugh et al. (2003). This measure controls for firm performance by including a lagged return on assets (ROA_{t-1}) variable in the accrual regression to eliminate possible mechanical relation between performance metric and current period's discretionary accrual estimate (Kothari et al., 2005). As with the first measure we

begin with estimating for the US IPOs sample an accrual regression based on the IPO year and two-digit SIC code:

$$ACC_t = \beta_1(1/TA_{t-1}) + \beta_2 \Delta Rev_t + \beta_3 ROA_{t-1} + \varepsilon_t \quad (3.3)$$

We calculate the second abnormal accrual variable (*EM2*) for the foreign IPO firm in year *t* as using the coefficients from (3) as follows:

$$EM2_t = ACC_t - \left[\hat{\beta}_1(1/TA_{t-1}) + \hat{\beta}_2(\Delta Rev_t - \Delta Rec_t) + \hat{\beta}_3(ROA_{t-1}) \right] \quad (3.4)$$

The third and last measure of discretionary accruals follows Ball and Shivakumar (2008), who investigate the magnitude of earnings management around initial public offerings in the UK. This measure modifies the Jones (1991) model by incorporating conservative asymmetric accruals. Specifically, this model adds to the Jones (1991) model piecewise linear variant:

$$ACC_t = \beta_1 + \beta_2 \Delta Rev_t + \beta_3 FASSET_t + \beta_4 CFO_t + \beta_5 DCFO_t + \beta_6 DCFO_t * CFO_t + \varepsilon_t \quad (3.5)$$

Note that this model employs the net book value of property, plants and equipment, *FASSET* (Compustat data item #8) and CFO_t as operating cash flow, both scaled by total assets at the beginning of the year and refer to the last financial year reported prior the IPO. $DCFO_t$ takes the value 1 if $CFO_t < 0$ and 0 otherwise. After estimating the model's coefficients using US IPOs we calculate the third abnormal accrual variable (*EM3*) for the foreign IPO in year *t* as the regression residual as follows:

$$EM3_t = ACC_t - \left[\hat{\beta}_1 + \hat{\beta}_2 \Delta Rev_t + \hat{\beta}_3 FASSET_t + \hat{\beta}_4 CFO_t + \hat{\beta}_5 DCFO_t + \hat{\beta}_6 DCFO_t * CFO_t \right] \quad (3.6)$$

In our analyses we use both the raw (or, signed) measures of abnormal accruals *EM1* to *EM3*, as well as their absolute value |*EM1*| to |*EM3*|. The raw measures capture the sign of the abnormal accrual, whereby a positive (negative) measure corresponds to aggressive (conservative), earnings. This measure is particularly suitable for assessing whether reporting incentives of foreign IPOs motivate earnings inflation. Using absolute measures reflects the view that positive accruals and negative abnormal accruals equally capture earnings quality. This is because a larger absolute value represents more extreme reporting outcome, or greater extent of misreporting.[27]

3.3.2 Measuring the Strength of Home Institutions

The strength of the IPO's home institutions is captured in the indicator variable *INST*. It is based on the product of two underlying measures. The first is the La Porta et al.'s (1998) index of anti-director rights, as adjusted by Spamann (2010).[28] The second measure is the International Country Risk Guide (ICRG) Law and Order index (taken from http://www.prsgroup.com/icrg.aspx). We use the product of these two measures because the anti-director rights index covers only aspects of *de-jure* regulation by capturing six sub-indices indicating the letter of the law, not its enforcement in practice (Durnev and Kim, 2005; Bruno and Claessens, 2010).[29] On the other hand, the Law and Order index assesses the *de-facto* law and order traditions, such as enforcement, of a country as well as the legal system. To each foreign IPO we assign the specific country-year score according to the year of the IPO and its home country to capture both *de-jure* and *de-facto* aspects of investors protection (Durnev and Kim, 2005; and Bruno and Claessens, 2010). Consistent with earlier studies (e.g., Leuz et al. 2009; Pinkowitz et al. 2006), we next divide the

[27] Using absolute value of abnormal accruals is consistent with the view of accounting regulators, such as the IASB and more recently of the FASB, that earnings should not be biased in either direction.
[28] Spamman (2010) shows that his revised index markedly differs from both La Porta et al.'s (1998) original index, as well as its later revision that is provided in Djankov et al. (2008).
[29] LRW classify countries' legal systems based only on a single measure - investor protection - following La Porta et al. (1998)

sample into strong (weak) home institutions sub-samples according to whether the country's score falls above (below or at) the sample median of the product of these two measures. The indicator $INST_i$ is set equal to one if the country's score is above the sample median, and zero otherwise.[30]

3.4 Regression Models

We are interested in (1) earnings quality in foreign IPOs in the US relative to US IPOs and (2) assessing how differences across institutional environments in the country of origin may affect the extent of earnings management in foreign IPOs. In the first regression model |*EM1*| to |*EM3*| are used as the dependent variables:

$$\begin{aligned}\left|EMJ_i\right| = \alpha + \beta_1 INST_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX_i \\ + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_9 CFO_i + \beta_{11} LIT_i + \varepsilon_t\end{aligned} \qquad (3.7)$$

where $J = \{1, 2, 3\}$.

The second regression model uses raw abnormal accruals, *EM1* to *EM3* as the dependent variables:

$$\begin{aligned}EMJ_i = \alpha + \beta_1 INST_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX_i \\ + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_9 CFO_i + \beta_{11} LIT_i + \varepsilon_t\end{aligned} \qquad (3.8)$$

Our two main variables of interest are the intercept α and the incremental intercept, the coefficient on $INST - \beta_1$. In regression Model 3.7, the intercept can be considered as a measure of the baseline absolute abnormal accruals, e.g., the level of absolute abnormal accruals not explained by the other explanatory variables of the model. Therefore, a negative (positive) intercept is consistent with less (more) extreme baseline abnormal accruals of foreign IPOs. Here the word "abnormal" is

[30] An alternative approach is to calculate the median score for each year and so *INST* is set to one if the country's score in a particular year is above that year's median. However, country scores are very stable, and there is not much difference in the value assigned to $INST_i$ under the alternative way.

used with respect to the accruals level expected from a US IPO with similar characteristics (per the accruals model). Similarly, the intercept in Model 3.8 captures the *sign* of these baseline accruals. A negative (positive) intercept is consistent with conservative (aggressive) baseline abnormal accruals relative to the US IPOs. In particular, a negative intercept is consistent with overly conservative reporting or some self-serving earnings deflation.[31] A positive sign is consistent with incentives to inflate earnings more than US IPOs (Teoh et al, 1998). The coefficient on *INST* captures the incremental effect of the strength of home institutions on the intercept. For example, finding in Model 3.7 a negative sign of *INST* would indicate that IPO firms from countries with strong institutions provide less extreme reporting outcomes than IPO firms from countries with weak institutions.

These models include control variables as follows. *OWNER* is the ratio of shares retained by insiders (i.e., initial owners) to all shares outstanding after the offering. We include this variable because ownership structures vary globally and are correlated with both institutions and earnings management (e.g., Leuz, 2006). Auditor quality, *AUD*, an indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990-1997, 1998-2001 and 2002 onwards, respectively; 0 otherwise. It is included since auditors influence the quality of reported numbers, especially in the context of issuing shares (Fan and Wong, 2005). *IPO* is an indicator variable that distinguishes between direct share issue in the US, (*IPO* = 1), and American Depository Receipts Level III (*IPO* = 0). While both direct share issue and ADRs Level III involve initial public offering of shares, ADRs may involve 20-Fs with reconciliations, whereby direct US listings involve filing 10-Ks (Miller, 1999). *UW* ranks the offering's leading underwriter's prestige, as per Jay Ritter's website.[32] Underwriter prestige has been documented to have a positive impact on reducing information asymmetry in IPOs (Balvers et al. 1988; Carter and Manaster, 1990). In addition, Jo et al. (2007) find that high quality underwriters restrict earnings

[31] Self-serving earnings deflation can occur if managers can eventually use hidden reserves to enjoy personal perks, or getting stock options at a lower exercise price.
[32] http://bear.warrington.ufl.edu/ritter/ipodata.htm.

management for seasoned equity offerings. *SOX* is an indicator variable that is set equal 1 if the IPO takes place after the enactment of the Sarbanes-Oxley Act (July 2002 onward), and zero otherwise. It is included to control for (and assess the extent to which) the stricter regulatory has influenced earnings management in foreign IPOs. *FSIZE*, a measure of firm size, is calculated as the log of sales at the end of the fiscal year preceding the issuing. It is commonly used as a measure of risk (Loughran and Ritter, 2004) as well as serving as a proxy for SEC attention owing to large size. *PROFIT* is the net income before extraordinary items over sales at the end of the fiscal year preceding the IPO. We include this variable because earnings management may be a function of performance. *LEV* is the ratio of total debt over total assets at the end of the fiscal year preceding the IPO. It is included to control for the possibility that leverage is correlated with both legal institutions and earnings management. *CFO* (e.g., operating cash flow) is a measure of performance that is less susceptible to earnings management through accruals and which thus captures real performance. Finally, some industries in the US are more prone to legal disputes, which may act as constraining factor on earnings management. We therefore include an indicator for litigation risk – based on industry membership consistent with Frankel et al. (2002) and Ashbaugh et al. (2003) – to control for (and evaluate) the effect of US litigation risk on earnings management by IPOs coming from countries with different legal institutions.[33] We control for possible time-series correlation of the residuals within year clusters using Rogers standard errors (Petersen, 2009) and consistent with Gow et al. (2010).[34] Appendix 3.A provides a summary of the variables used in this paper and their definitions.

One limitation of models 3.7 and 3.8 is that they assume that all coefficients (apart from *INST*) are the same for foreign IPOs from both countries with strong and weak legal institutional environments. However, these coefficients may also vary across countries and legal institutions, and so this restriction may not be econometrically justified. We therefore run models 3.7 and 3.8 separately for the two

[33] The industries that are more prone to US litigation are identified in Francis et al. (1994)
[34] Since *LIT* is essentially industry membership indicator, we do not include further industry dummies.

sub-samples – strong and weak home institutions - and report the difference in the coefficients using interactions of *INST* with the other independent variables.[35]

3.5 The Sample

The foreign IPO sample selection process starts by identifying companies that were first time issuers to US markets between 1990 and 2009. Only firms with no prior listing in any market within or outside of the US are included in this sample. According to the Security Data Corporation (SDC) New Issues database classification, foreign firms are firms that were incorporated and whose primary executive offices are located outside of the US (Bruner et al. 2006). We exclude equity listing originated from spin-offs of publically-listed companies or from mergers and acquisitions, following Bruner et al. (2006). Further eliminated are warrants, units and rights offerings, as well as utility firms. Firms that are based in the Bahamas, Cayman Islands, and Bermuda were also removed from the sample. This is due to the fact that those are typically US firms within the financial services industry that are registered in these geographical locations for tax reasons and, although they comply with the definition of foreign companies, they do not fit the specific context of this research. We also exclude all firms with insufficient financial data.

As reported in Panel A of Table 3.6, the final IPO sample is comprised of 291 observations. Panel B of Table 3.1 presents industry composition of the sample according to the Fama-French (FF) 12-industry classification. This Panel shows that the largest group of IPOs in the sample is in the Business Equipment industry (FF6), followed by the Telephone and Television Transmission (FF7), and Manufacturing (FF3). Panel C of Table 3.6 reports the distributions of IPOs according the country of origin in five periodic windows from 1990-2009. Consistent with other studies on foreign issuers in the US, the largest number of IPOs is from China (51), followed by Israel (48) and UK (29). Most of the IPOs come from the years before 2001,

[35] The interaction models are further described in Section 5.

reflecting the burst of internet and dot.com bubble of 2001 and its effect on the high-tech sector which generates many IPOs (about 55% in our sample).

We obtained a copy of each firm's prospectus to manually extract many of the variables needed for the empirical investigation. This is done through the Edgar database provided by the SEC and the Perfect Filing database. Foreign currency figures are translated into US dollar figures based on the exchange rates disclosed in the prospectuses. Thereafter we index the US figures to 2005 US dollar value based on the Consumer Price Index (CPI) as reported by the International Monetary Fund[36]. Panel D of Table 3.6 reports summary statistics for each of the variables in the pooled sample.[37] In addition, the sample is further divided into two sub-samples: strong and weak home legal institutions with 133 and 158 firms respectively in each sub-sample.[38] Though the three signed measures of abnormal accruals are similar between the weak and strong home institutions, there are a number of other notable differences emerging from the univariate analysis. Insider ownership (*OWNER*) and profitability (*PROFIT*) are higher in IPOs from weak home institutions. These IPOs also tend to issue shares directly (rather than using ADRs Level III) to a larger extent than IPOs from countries with strong institutions, as is seen from the comparison for the *IPO* variable. Interestingly, post-SOX there are relatively more IPOs from weak home institutions. This is consistent with SOX having a negative impact on the magnitude of "trading down" by IPOs from strong home institutions. IPOs from strong home institutions are more leveraged and have multiple simultaneous more often than IPOs from weak home institutions (*MULTI* is 35% in the Strong sub-sample vs. 11% in the Weak sub-sample).

Table 3.7 reports the correlation coefficients for the various variables. The correlations among the three abnormal accrual measures are high, but well below unity. This indicates that they capture different outcomes of earnings management.

[36] Retrieved from http://www.imf.org/external/data.htm#data on April 2011
[37] Panel D involves some additional variables that will are used in sensitivity analyses. We refer to these when we describe these analyses.
[38] Since there are a number of countries falling at the median of the institutions index, there are more observations classified into the "Weak" group.

There is no significant correlation between *EM1-EM3* and *INST*, suggesting no effect of home institutions on abnormal accruals in a single factor analysis. Firm size is negatively correlated with the three measures of abnormal accruals.

Table 3.6: Summary Statistics

Panel A: Sample Development

	Number of Firms
All SDC Platinum new US Foreign listings in years 1990-2009	677
Excluding observations:	
For which prospectus not available	196
With offering other than common/ordinary stock	117
For financial services firms and utilities	10
With insufficient financial data necessary for our analyses	38
With less than 10 observations for year and industry matching	1
Final Sample	291

Panel B: Sample Selection by Fama-French 12 Industry Classification

FF1	Consumer Non-Durables	9
FF2	Consumer Durables	7
FF3	Manufacturing	22
FF4	Oil, Gas, and Coal Extraction and Products	3
FF5	Chemicals and Allied Products	7
FF6	Business Equipment	118
FF7	Telephone and Television Transmission	45
FF8	Utilities	-
FF9	Wholesale, Retail, and Some Services	7
FF10	Healthcare, Medical Equipment, and Drugs	27
FF11	Finance	-
FF12	Other	46
Total		**291**

Panel C: Country of Origin by Period

Country	1990-1993	1994-1997	1998-2001	2002-2005	2006-2009	Total
Argentina	0	0	1	0	1	**2**
Austria	0	0	1	0	0	**1**
Australia	0	2	0	0	0	**2**
Belgium	0	1	0	0	0	**1**
Brazil	0	1	0	0	0	**1**
Canada	0	8	14	2	3	**27**
Chile	1	2	0	0	0	**3**
China	0	0	6	12	33	**51**
Denmark	1	0	0	0	0	**1**
Finland	0	1	0	0	0	**1**
France	1	6	5	0	0	**13**
Germany	0	2	4	0	0	**6**
Greece	0	0	3	2	2	**7**
Hong-Kong	1	9	3	3	0	**16**
Indonesia	0	1	0	0	0	**1**
India	0	0	2	0	0	**2**
Ireland	0	3	4	0	2	**9**
Israel	3	17	16	5	7	**48**
Italy	2	3	1	1	0	**7**
Japan	0	0	2	0	0	**2**
Jordan	0	1	0	0	0	**1**
Luxemburg	1	0	1	0	0	**2**
Mexico	2	0	0	1	0	**3**
Netherlands	1	13	6	0	1	**21**
New-Zealand	1	3	0	0	0	**4**
Norway	0	0	1	0	0	**1**
Poland	0	1	0	0	0	**1**
Singapore	0	2	2	0	2	**6**
South-Africa	0	0	0	1	0	**1**
South-Korea	0	1	3	3	1	**8**
Spain	0	0	1	0	0	**1**
Sweden	0	3	0	0	0	**3**
Switzerland	0	3	3	1	0	**7**
Taiwan	0	0	0	1	1	**2**
UK	0	18	9	2	0	**29**
Total	**14**	**100**	**87**	**35**	**54**	**291**

Panel D: Summary Statistics for Strong and Weak Home Legal Institutions Sub-samples

	Full Sample: N=291					Strong Home Legal Institutions: N=133					Weak Home Legal: N=158				
	Mean	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**
EM1	0.925	3.869	-0.069	0.152	0.641	1.045	4.273	-0.097	0.086	0.709	0.825	3.504	-0.069	0.170	0.565
EM2	0.341	2.449	-0.361	-0.032	0.370	0.395	2.942	-0.505	-0.037	0.333	0.296	1.952	-0.301	-0.024	0.370
EM3	0.150	1.233	-0.210	0.019	0.372	0.224	1.306	-0.252	-0.018	0.312	0.087	1.168	-0.178	0.052	0.372
INST	0.455	0.499	0.000	0.000	1.000	1.000	0.000	1.000	1.000	1.000	0.000***	0.000	0.000	0.000***	0.000
OWNER	0.717	0.158	0.683	0.754	0.801	0.690	0.189	0.642	0.743	0.803	0.740***	0.123	0.698	0.760*	0.801
AUD	0.877	0.329	1.000	1.000	1.000	0.887	0.318	1.000	1.000	1.000	0.868	0.340	1.000	1.000	1.000
IPO	0.459	0.499	0.000	0.000	1.000	0.406	0.493	0.000	0.000	1.000	0.503**	0.502	0.000	1.000*	1.000
UW	7.974	1.983	8.000	9.000	9.000	8.017	1.968	8.000	9.000	9.000	7.938	2.001	8.000	9.000	9.000
SOX	0.305	0.461	0.000	0.000	1.000	0.128	0.335	0.000	0.000	0.000	0.453***	0.499	0.000	0.000***	1.000
FSIZE	17.727	3.032	16.550	17.693	19.033	17.841	3.176	16.738	17.778	19.227	17.632	2.912	16.453	17.406	18.809
LEV	0.334	0.371	0.038	0.240	0.500	0.396	0.430	0.066	0.311	0.587	0.282***	0.304	0.021	0.194**	0.442
PROFIT	-0.610	2.792	-0.184	0.044	0.137	-1.050	3.615	-0.322	0.028	0.091	-0.241***	1.772	-0.094	0.074***	0.192
CFO	0.074	0.232	0.002	0.009	0.034	0.083	0.265	0.002	0.010	0.039	0.067	0.202	0.003	0.009	0.032
LIT	0.182	0.386	0.000	0.000	0.000	0.158	0.366	0.000	0.000	0.000	0.201	0.402	0.000	0.000	0.000
RECON	0.260	0.440	0.000	0.000	1.000	0.368	0.484	0.000	0.000	1.000	0.170***	0.377	0.000	0.000***	0.000
MULTI	0.223	0.417	0.000	0.000	0.000	0.353	0.480	0.000	0.000	1.000	0.113***	0.318	0.000	0.000***	0.000
CONTI	0.541	0.154	0.380	0.560	0.670	0.691	0.497	0.670	0.670	0.670	0.417***	0.865	0.380	0.420***	0.440
NYSE	0.308	0.463	0.000	0.000	1.000	0.278	0.450	0.000	0.000	1.000	0.333	0.473	0.000	0.000	0.000
NASDAQ	0.664	0.473	0.000	1.000	1.000	0.707	0.457	0.000	1.000	1.000	0.629	0.485	0.000	1.000	1.000
AMEX	0.027	0.164	0.000	0.000	0.000	0.015	0.122	0.000	0.000	0.000	0.038	0.191	0.000	0.000	0.000

Note:
The table presents the sample selection process (Panel A), composition by industry (Panel B), composition by country and period industry (Panel C) and descriptive statistics for the full sample as well as for distinguishing between strong home legal institutions (*INST* = 1) and weak home legal institutions (*INST* = 0). Panel D also reports the results of tests for the differences in the means and medians (the latter using Wilcoxon rank-test) under the Weak Home Institutions block. ,* , **, *** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. See Appendix 3.A for variable definitions.

Table 3.7: Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	***EM1***																			
2	***EM2***	**0.57**																		
3	***EM3***	**0.46**	**0.55**																	
4	***INST***	0.03	0.02	0.06																
5	***OWNER***	0.04	0.03	-0.04	**-0.15**															
6	***AUD***	0.07	0.02	0.00	0.03	-0.01														
7	***IPO***	-0.04	0.03	0.00	-0.09	-0.07	**-0.30**													
8	***UW***	-0.06	-0.04	**-0.16**	0.02	0.00	**0.51**	**-0.32**												
9	***SOX***	-0.11	**-0.12**	0.04	**-0.35**	0.08	0.11	**-0.13**	0.10											
10	***FSIZE***	**-0.23**	**-0.24**	**-0.27**	0.03	-0.02	0.10	**-0.24**	**0.17**	-0.03										
11	***PROFIT***	**-0.17**	-0.02	-0.02	**-0.15**	-0.02	-0.08	-0.06	0.03	0.08	**0.52**									
12	***LEV***	0.03	-0.06	-0.04	**0.15**	-0.06	0.04	-0.04	-0.04	**-0.15**	0.10	**-0.13**								
13	***CFO***	-0.05	-0.03	-0.11	0.03	0.03	0.01	**-0.15**	0.05	-0.08	**0.40**	0.05	0.03							
14	***LIT***	-0.06	-0.06	**0.13**	-0.05	**0.15**	0.09	-0.03	0.00	**0.23**	**-0.12**	-0.11	-0.09	-0.07						
15	***RECON***	-0.07	-0.09	-0.05	**0.23**	-0.04	0.10	**-0.23**	0.07	**-0.27**	**0.33**	-0.08	**0.24**	**0.31**	-0.17					
16	***MULTI***	0.06	0.04	-0.02	**0.28**	0.00	**0.18**	**-0.49**	**0.18**	**-0.35**	**0.22**	**-0.14**	**0.18**	**0.23**	-0.05	**0.36**				
17	***CONTI***	0.03	0.00	0.03	**0.88**	-0.05	0.06	-0.02	0.00	**-0.34**	0.03	**-0.23**	0.07	-0.05	-0.02	**0.15**	**0.25**			
18	***NYSE***	-0.08	-0.11	-0.09	-0.07	-0.09	**0.18**	**-0.21**	**0.19**	**0.14**	**0.56**	**0.33**	**0.16**	**0.53**	**-0.12**	**0.28**	0.06	**-0.12**		
19	***NASDAQ***	0.06	0.11	0.03	0.09	0.07	-0.11	**0.20**	-0.10	**-0.16**	**-0.50**	**-0.31**	**-0.16**	**-0.45**	0.10	**-0.26**	-0.05	**0.14**	**-0.94**	
20	***AMEX***	0.06	0.01	**0.15**	-0.07	0.04	**-0.19**	0.01	**-0.25**	0.07	-0.11	-0.02	0.01	**-0.18**	0.03	-0.05	-0.04	-0.06	-0.11	**-0.24**

Note: The table presents Pearson pair-wise correlations for selected variables. Correlations equal or above 0.12 and equal or below -0.12 are significant at the 0.05 level. See Appendix 3.A for variable definitions.

3.6 Findings

3.6.1 Main Findings

Table 3.8 presents the results of estimating Model 3.7, where the dependent variables are the absolute values of the three abnormal accrual measures. For each measure |*EM1*|-|*EM3*| we estimate this model with interactions between *INST* and the other explanatory variables as follows:

$$\begin{aligned}\left|EMJ_i\right| = {} & \alpha + \beta_1 INST_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX \\ & + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_{10} CFO_i + \beta_{11} LIT_i \\ & + \gamma_1 INST_i * OWNER_i + \gamma_2 INST_i * AUD_i + \gamma_3 INST_i * IPO_i + \gamma_4 INST_i * UW_i \\ & + \gamma_5 INST_i * SOX_i + \gamma_6 INST_i * FSIZE_i + \gamma_7 INST_i * PROFIT_i \\ & + \gamma_8 INST_i * LEV_i + \gamma_9 INST_i * CFO_i + \gamma_{10} INST_i * LIT_i + \varepsilon_t\end{aligned} \quad (3.9)$$

where $J = \{1, 2, 3\}$. A positive (negative) intercept implies that a foreign IPO from weak home institutions report accruals of larger (smaller) extreme values, or larger (smaller) accruals variability, than its US equivalent. The coefficient β_1 captures the incremental effect associated with strong home institutions. In this specification the coefficients $\beta_2 - \beta_{11}$ capture the effect of the specific regressor (*OWNER*, *AUD*, *IPO*, *UW*, *SOX*, *FSIZE*, *PROFIT*, *LEV*, *CFO* and *LIT*, respectively) in IPOs from countries with weak institutions (where *INST* = 0); the coefficients $\gamma_1 - \gamma_{10}$ capture the incremental effect of the same regressors in IPOs from countries with strong institutions (where *INST* = 1).

Across the three models the intercept is positive and significant for strong home institutions. It is also positive for weak home institutions, but significant in two models. This evidence suggests that foreign IPOs manage earnings to a greater extent than their US counterparts. Additionally, the magnitude of the intercept is higher for strong home institutions than for weak home institutions, suggesting more extreme abnormal accruals in IPOs from countries with strong home institutions. The difference in the magnitude of the intercept is attributed to

the incremental effect of *INST*. In all three models *INST* is positive and significant, though in the third model marginally so.

Among the control variables, we find that greater insider holding is associated with more extreme reporting in IPOs from weak home countries. The difference between the two sub-samples is also significant. This is consistent with the governance roles of insiders being contingent on domestic legal institutions: when these institutions are strong, insider concentration is irrelevant for earnings management, but when institutions are weak, strong insiders exercise more reporting flexibility resulting in a high variability of reported numbers. We note that Leuz (2006) also finds a positive relation between insider holding and earnings management. However, he does not distinguish between sub-samples according to the strength of home countries' institutions. There is a negative association of SOX with the three absolute measures of abnormal accruals, but only in the weak institutions sub-sample. The difference between the two sub-samples is significant with respect to *SOX*. This finding suggests the stricter reporting environment that follows SOX constraints earnings management through accruals manipulations (Cohen et al., 2008), but this is only evident in IPOs coming from weak home institutions. That no such relation is detected for strong home institutions is further consistent with weaker monitoring of foreign IPOs from strong home institutions by US investors and regulators. Firm size is associated with less extreme reporting outcomes, as can be seen from the negative and significant coefficient on *FSIZE* in all regression models. This is consistent with larger IPO firms either relying less on earnings management or fearing a greater SEC scrutiny, or both.

Table 3.8: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

		EM1				*EM2*				*EM3*	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**11.465**	1.500		**10.229**	**2.930**		**4.282**	**1.880**	
	(0.003)	(0.531)		**(0.003)**	**(0.082)**		**(0.003)**	**(0.009)**	
INST			**9.965**			**7.299**			2.402
			(0.004)			**(0.022)**			(0.101)
OWNER	1.107	**4.013**	**-2.906**	-0.005	**1.927**	**-1.933**	0.372	**1.331**	**-0.960**
	(0.242)	**(0.067)**	**(0.075)**	(0.994)	**(0.032)**	**(0.006)**	(0.110)	**(0.000)**	**(0.016)**
AUD	**2.268**	1.826	0.442	0.428	0.731	-0.303	**0.491**	**0.371**	0.120
	(0.005)	(0.112)	(0.604)	(0.678)	(0.232)	(0.730)	**(0.023)**	**(0.052)**	(0.262)
IPO	-1.020	-0.369	-0.651	-0.230	**0.238**	-0.468	-0.289	0.027	-0.316
	(0.143)	(0.477)	(0.403)	(0.546)	**(0.069)**	(0.256)	(0.218)	(0.811)	(0.219)
UW	-0.297	-0.119	-0.178	**-0.239**	-0.076	-0.163	**-0.099**	0.018	**-0.117**
	(0.153)	(0.697)	(0.512)	**(0.008)**	(0.657)	(0.262)	**(0.099)**	(0.760)	**(0.074)**
SOX	-0.052	**-1.579**	**1.527**	0.141	**-0.792**	**0.934**	0.139	**-0.327**	**0.466**
	(0.943)	**(0.038)**	**(0.022)**	(0.786)	**(0.014)**	**(0.043)**	(0.596)	**(0.043)**	**(0.053)**
FSIZE	**-0.564**	**-0.157**	**-0.407**	**-0.406**	**-0.164**	**-0.242**	**-0.187**	**-0.151**	-0.036
	(0.022)	**(0.020)**	**(0.054)**	**(0.012)**	**(0.012)**	**(0.090)**	**(0.000)**	**(0.000)**	(0.495)
PROFIT	-0.091	0.128	-0.220	0.063	0.132	-0.069	0.013	**0.083**	-0.070
	(0.279)	(0.534)	(0.402)	(0.417)	(0.278)	(0.704)	(0.603)	**(0.073)**	(0.195)
LEV	0.267	-0.158	0.425	-0.176	-0.625	0.449	-0.061	0.405	-0.466
	(0.674)	(0.865)	(0.618)	(0.377)	(0.169)	(0.328)	(0.783)	(0.250)	(0.223)
CFO	1.640	-1.662	**3.302**	0.908	**-0.421**	1.329	0.362	0.437	-0.075
	(0.213)	(0.125)	**(0.098)**	(0.215)	**(0.050)**	(0.105)	(0.175)	(0.349)	(0.885)
LIT	**-1.537**	-0.439	-1.098	-0.698	-0.584	-0.114	-0.039	0.249	-0.288
	(0.020)	(0.544)	(0.153)	(0.150)	(0.174)	(0.855)	(0.845)	(0.334)	(0.460)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.191	0.036	0.121	0.134	0.127	0.136	0.222	0.157	0.190

Notes:

1. The table presents results of the regression models of absolute abnormal accruals separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column). The Difference column reports the difference between the

two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See Appendix 3.A for variable definitions.

2. The interactions model:

$$\begin{aligned}|EMJ_i| = {} & \alpha + \beta_1 INST_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_{10} CFO_i + \beta_{11} LIT_i \\ & + \gamma_1 INST_i * OWNER_i + \gamma_2 INST_i * AUD_i + \gamma_3 INST_i * IPO_i + \gamma_4 INST_i * UW_i + \gamma_5 INST_i * SOX_i + \gamma_6 INST_i * FSIZE_i + \gamma_7 INST_i * PROFIT_i \\ & + \gamma_8 INST_i * LEV_i + \gamma_9 INST_i * CFO_i + \gamma_{10} INST_i * LIT_i + \varepsilon_t \end{aligned} \quad (3.9)$$

In Table 3.9 we conduct the analysis of Model 3.8 employing the signed measures of abnormal accruals, again using interactions with *INST* as follows:

$$\begin{aligned} EMJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX \\ & + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_{10} CFO_i + \beta_{11} LIT_i \\ & + \gamma_1 INST_i * OWNER_i + \gamma_2 INST_i * AUD_i + \gamma_3 INST_i * IPO_i + \gamma_4 INST_i * UW_i \\ & + \gamma_5 INST_i * SOX_i + \gamma_6 INST_i * FSIZE_i + \gamma_7 INST_i * PROFIT_i \\ & + \gamma_8 INST_i * LEV_i + \gamma_9 INST_i * CFO_i + \gamma_{10} INST_i * LIT_i + \varepsilon_t \end{aligned} \quad (3.10)$$

where $J = \{1, 2, 3\}$. A positive (negative) intercept implies that a foreign IPO from weak home institutions report more (less) positive accruals than US IPO equivalents. The coefficient β_1 captures the effect associated with strong home institutions. The interpretation of the coefficients $\beta_2 - \beta_{11}$ and $\gamma_1 - \gamma_{10}$ is similar to that in (9), though this time applied to the raw measures of abnormal accruals.

Across all three models in Table 3.9 the intercept is positive and significant in the strong institutions sub-sample. The intercept is also positive in all three models for the weak institutions sub-sample, albeit it is significant only in the third model. Nevertheless, the coefficient on *INST* is positive and significant in all three models indicating the two sub-samples are distinctly different. This is consistent with a higher degree of earnings inflation in IPOs from countries with strong legal institutions compared to IPOs from countries with weak home institutions (other things being equal).

Turning to the control variables, note from Table 3.9 that we find that insider ownership is positively associated with the three absolute measures of abnormal accruals, but only for the weak home institutions sub-sample. Here, in contrast, we do not find any significant effect for *OWNER*. Taken together, this suggests that high insider ownership increases accruals variability, but without having a particular direction. In other words, it equally affects earnings inflation and earnings deflation. As in Table 3.9, there is evidence of a constraining effect of SOX on earnings management in IPOs from weak home institutions. Specifically, the coefficient on *SOX* is negative and significant in two of the accruals models in the weak institutions sub-sample. This suggests that SOX

reduced earning inflation in the weak institutions sub-sample, though the difference with regard to the strong home institutions sub-sample is not generally significant. IPO-firm size is negatively related to earnings inflation. Finally, the coefficient on the litigation variable *LIT* is negative in all three models for strong home institutions, though significantly so only in two models. The incremental effect relative to weak home institutions is nevertheless negative and significant. This is consistent with a suggestion that the rule of home law, or lack of it in the case of weak home institutions (Siegel, 2005), influences earnings management in foreign IPOs in the US

Table 3.9: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			*EM2*			*EM3*		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**11.029**	2.474		**9.672**	1.697		**5.071**	**2.847**	
	(0.016)	(0.318)		**(0.034)**	(0.285)		**(0.000)**	**(0.000)**	
INST			**8.554**			**7.975**			**2.224**
			(0.030)			**(0.027)**			**(0.037)**
OWNER	0.614	2.771	-2.157	0.328	1.474	-1.146	-0.215	-0.420	0.205
	(0.346)	(0.215)	(0.279)	(0.626)	(0.291)	(0.369)	(0.651)	(0.220)	(0.593)
AUD	**2.046**	1.795	0.251	0.590	1.163	-0.573	**0.634**	0.292	0.342
	(0.017)	(0.145)	(0.757)	(0.578)	(0.272)	(0.530)	**(0.049)**	(0.499)	(0.299)
IPO	-1.000	-0.455	-0.545	-0.289	0.092	-0.381	-0.141	-0.217	0.075
	(0.173)	(0.378)	(0.503)	(0.358)	(0.662)	(0.414)	(0.394)	(0.199)	(0.765)
UW	-0.286	-0.183	-0.103	-0.070	-0.047	-0.023	**-0.133**	-0.099	-0.034
	(0.133)	(0.582)	(0.711)	(0.654)	(0.864)	(0.928)	**(0.001)**	(0.362)	(0.703)
SOX	-0.168	**-1.468**	**1.300**	-0.272	**-0.973**	0.701	0.216	0.003	0.213
	(0.822)	**(0.054)**	**(0.039)**	(0.625)	**(0.023)**	(0.211)	(0.515)	(0.984)	(0.509)
FSIZE	**-0.532**	**-0.152**	-0.380	**-0.505**	**-0.144**	**-0.361**	**-0.226**	**-0.111**	**-0.115**
	(0.060)	**(0.013)**	(0.138)	**(0.016)**	**(0.018)**	**(0.063)**	**(0.000)**	**(0.006)**	**(0.077)**
PROFIT	-0.031	0.154	-0.185	0.209	0.203	0.006	**0.106**	0.118	-0.012
	(0.720)	(0.460)	(0.505)	(0.115)	(0.147)	(0.980)	**(0.091)**	(0.179)	(0.906)
LEV	0.228	-0.248	0.476	-0.105	-0.549	0.444	-0.140	0.218	-0.358
	(0.789)	(0.802)	(0.625)	(0.628)	(0.275)	(0.365)	(0.496)	(0.403)	(0.323)
CFO	1.675	-1.227	2.902	**1.663**	-0.029	**1.692**	**0.665**	-0.197	0.861
	(0.258)	(0.275)	(0.193)	**(0.032)**	(0.931)	**(0.093)**	**(0.040)**	(0.742)	(0.247)
LIT	**-1.765**	-0.171	**-1.594**	**-1.187**	0.146	**-1.333**	-0.151	**0.656**	**-0.807**
	(0.013)	(0.801)	**(0.012)**	**(0.016)**	(0.783)	**(0.045)**	(0.643)	**(0.022)**	**(0.010)**
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.121	0.009	0.070	0.111	0.063	0.094	0.132	0.099	0.116

Notes:

1. The table presents results of the regression models of signed abnormal accruals separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column). The Difference column reports the difference between the two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen,

2009). See Appendix 3.A for variable definitions.

2. The interactions model:

$$EMJ_i = \alpha + \beta_1 INST_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_{10} CFO_i + \beta_{11} LIT_i + \gamma_1 INST_i * OWNER_i + \gamma_2 INST_i * AUD_i + \gamma_3 INST_i * IPO_i + \gamma_4 INST_i * UW_i + \gamma_5 INST_i * SOX_i + \gamma_6 INST_i * FSIZE_i + \gamma_7 INST_i * PROFIT_i + \gamma_8 INST_i * LEV_i + \gamma_9 INST_i * CFO_i + \gamma_{10} INST_i * LIT_i + \varepsilon_t \quad (3.10)$$

Collectively, the findings of Tables 3.3 and 3.4 suggest that with respect to earnings management there are (1) differences between foreign IPOs and US IPOs – foreign IPOs engage in earnings management more than US IPOs, and (2) there are notable differences across the two sub-samples. IPOs from countries with strong institutions manage earnings more than IPOs from weak home institutions. This evidence is in line with Licht (2003) whereby the US offers opportunities for many foreign firms to escape home institutions with the objective to have more reporting flexibility. Put differently, IPOs from strong home institutions seem to trade down their reporting quality.[39] On a very broad level, these findings are not supportive of the view that foreign IPOs in the US share the same reporting incentives as US IPOs even though they nominally apply the same reporting standards (US GAAP)[40] and are equally subject to the US legal institutions and accounting enforcement. Moreover, reporting incentives vary with the strength of home institutions. More specifically, home institutions further interact with insider ownership, threat of litigation and the passage of SOX in influencing reporting outcomes.

3.7 Additional Analyses

We conduct several additional tests to address a number of potential limitations of the analysis so far. First, about one quarter of foreign IPOs use reconciliations rather than report directly under US GAAP. Since prior research indicates poor quality of reconciliations, it is possible that the findings reported above are mainly driven by this group of IPOs, albeit its small size. To explore this possibility, we construct a new indicator variable, *RECON*, which takes the value of 1 if the prospectus includes reconciliations, and zero otherwise. Panel D of Table 3.6 provides the descriptive statistics for this variable. Its mean is 0.26 in the entire sample, but its incidence is lower among foreign IPOs from weak home institutions. This may explain, at least in part, our findings that the intercept is lower in Tables 3.3 and 3.4 for foreign IPOs from weak home institutions, as they

[39] In Section 5.2 we define the *INST* indicator relative to the US score, rather than sample median, and repeat the analysis to provide more direct evidence on this issue.
[40] Strictly speaking, about one quarter of the sample reconciles domestic GAAP to US GAAP – we investigate the influence of reconciliations in Section 5.2.

use US GAAP to a greater extent. This is also consistent with IPOs from countries with weak home institutions committing to better reporting because they are perceived to be susceptible to governance problems. Table 3.10 reports the findings of re-estimating (9) and (10) by adding *RECON* to the vector of independent variables. Panel A reports the findings when the dependent variable is the absolute value of the three measures of abnormal accruals, while Panel B reports findings when the dependent variable is the signed measure. Both panels confirm our previous findings that IPOs from countries with strong institutions engage in more earnings management (Panel A) and more earnings inflation (Panel B) than IPOs from countries with weak institutions. More specifically, comparing Panel A to Table 3.8 we note that the intercepts are similar, except that now for |*EM2*| the intercept is insignificantly different from zero for weak home institutions. The difference in the intercept between strong and weak country institutions is now significant for all three models. Additionally, the coefficient on *RECON* is insignificant across the three specifications. The effects of control variables are broadly the same, though the evidence on the positive effect of insider ownership in weak home institutions is somewhat weaker – the coefficient is now insignificant for |*EM1*| - but remains significant in the other two.

Comparing Panel B to Table 3.9 we note that the intercepts are quite similar. As in Table 3.9, IPOs from counties with strong home institutions inflate earnings more than their US equivalents. The coefficient on *RECON* is largely insignificant except for *EM3* where it is negative in the weak country institutions sub-sample. The other findings in Panel B are similar to Table 3.9.

Table 3.10: The Effect of Reconciliations

Panel A: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	|*EM1*|		|*EM2*|		|*EM3*|	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**11.129**	0.572		**10.209**	2.656		**4.259**	**1.723**	
	(0.003)	(0.844)		**(0.003)**	(0.114)		**(0.001)**	**(0.015)**	
INST			**10.557**			**7.553**			**2.536**
			(0.005)			**(0.015)**			**(0.044)**
RECON	-0.843	-1.990	1.147	-0.051	-0.587	0.536	-0.058	-0.338	0.280
	(0.288)	(0.293)	(0.496)	(0.918)	(0.293)	(0.490)	(0.847)	(0.373)	(0.638)
OWNER	1.091	4.076	-2.985	-0.009	**1.946**	**-1.955**	0.371	**1.343**	**-0.973**
	(0.157)	(0.105)	(0.143)	(0.991)	**(0.051)**	**(0.008)**	(0.109)	**(0.001)**	**(0.020)**
AUD	**2.362**	1.897	0.465	0.434	0.752	-0.318	**0.497**	**0.383**	0.115
	(0.007)	(0.107)	(0.642)	(0.659)	(0.216)	(0.704)	**(0.032)**	**(0.040)**	(0.427)
IPO	-1.001	-0.925	-0.076	-0.229	0.074	-0.303	-0.288	-0.068	-0.220
	(0.145)	(0.378)	(0.950)	(0.544)	(0.669)	(0.501)	(0.216)	(0.654)	(0.499)
UW	-0.307	-0.125	-0.183	**-0.240**	-0.078	-0.162	-0.100	0.017	**-0.117**
	(0.151)	(0.688)	(0.538)	**(0.007)**	(0.651)	(0.281)	(0.117)	(0.776)	**(0.095)**
SOX	-0.245	**-2.035**	**1.790**	0.129	**-0.927**	**1.056**	0.126	**-0.404**	**0.530**
	(0.759)	**(0.068)**	**(0.049)**	(0.808)	**(0.020)**	**(0.046)**	(0.643)	**(0.025)**	**(0.053)**
FSIZE	**-0.532**	-0.064	**-0.468**	**-0.404**	**-0.136**	**-0.267**	**-0.185**	**-0.136**	-0.050
	(0.034)	(0.428)	**(0.063)**	**(0.017)**	**(0.007)**	**(0.069)**	**(0.000)**	**(0.000)**	(0.142)
PROFIT	**-0.120**	0.068	-0.187	0.061	0.114	-0.053	0.011	0.073	-0.062
	(0.080)	(0.771)	(0.476)	(0.365)	(0.356)	(0.760)	(0.502)	(0.139)	(0.257)
LEV	0.429	-0.072	0.501	-0.166	-0.600	0.434	-0.050	0.419	-0.470
	(0.532)	(0.949)	(0.588)	(0.439)	(0.217)	(0.312)	(0.847)	(0.272)	(0.262)
CFO	1.875	**-1.065**	**2.940**	0.923	-0.245	1.168	0.378	0.538	-0.160
	(0.134)	**(0.059)**	**(0.075)**	(0.150)	(0.322)	(0.119)	(0.162)	(0.247)	(0.775)
LIT	**-1.671**	-0.589	-1.082	-0.706	-0.628	-0.078	-0.048	0.224	-0.271
	(0.009)	(0.482)	(0.179)	(0.111)	(0.169)	(0.900)	(0.830)	(0.412)	(0.534)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.193	0.055	0.131	0.127	0.129	0.132	0.216	0.161	0.189

Panel B: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			***EM2***			***EM3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**10.682**	1.674		**9.519**	1.512		**5.121**	**3.086**	
	(0.019)	(0.566)		**(0.038)**	(0.347)		**(0.000)**	**(0.000)**	
INST			**9.008**			**8.007**			**2.035**
			(0.043)			**(0.030)**			**(0.045)**
RECON	-0.870	-1.717	0.847	-0.386	-0.397	0.011	0.125	**0.512**	**-0.387**
	(0.319)	(0.328)	(0.537)	(0.508)	(0.570)	(0.990)	(0.441)	**(0.061)**	**(0.074)**
OWNER	0.597	2.825	-2.228	0.303	1.486	-1.183	-0.213	-0.437	0.224
	(0.293)	(0.264)	(0.362)	(0.626)	(0.313)	(0.400)	(0.635)	(0.243)	(0.499)
AUD	**2.143**	1.855	0.287	0.634	1.177	-0.543	**0.620**	0.274	0.346
	(0.015)	(0.142)	(0.755)	(0.533)	(0.267)	(0.537)	**(0.042)**	(0.524)	(0.296)
IPO	-0.980	-0.935	-0.046	-0.283	-0.019	-0.264	-0.144	-0.073	-0.071
	(0.174)	(0.361)	(0.968)	(0.383)	(0.949)	(0.608)	(0.384)	(0.579)	(0.756)
UW	-0.296	-0.189	-0.108	-0.075	-0.049	-0.026	**-0.131**	-0.097	-0.034
	(0.120)	(0.578)	(0.718)	(0.625)	(0.862)	(0.920)	**(0.001)**	(0.363)	(0.700)
SOX	-0.367	**-1.861**	**1.495**	-0.361	**-1.064**	0.703	0.244	0.120	0.124
	(0.653)	**(0.092)**	**(0.073)**	(0.526)	**(0.058)**	(0.275)	(0.459)	(0.465)	(0.695)
FSIZE	**-0.498**	-0.072	-0.427	**-0.490**	**-0.126**	**-0.364**	**-0.231**	**-0.135**	-0.096
	(0.085)	(0.311)	(0.153)	**(0.028)**	**(0.001)**	**(0.089)**	**(0.000)**	**(0.000)**	(0.120)
PROFIT	-0.060	0.101	-0.161	0.196	0.191	0.004	**0.110**	0.134	-0.023
	(0.372)	(0.660)	(0.557)	(0.130)	(0.195)	(0.985)	**(0.075)**	(0.103)	(0.804)
LEV	0.396	-0.173	0.569	-0.031	-0.532	0.501	-0.164	0.196	-0.360
	(0.674)	(0.882)	(0.573)	(0.904)	(0.302)	(0.255)	(0.444)	(0.396)	(0.308)
CFO	1.917	-0.712	2.629	**1.775**	0.090	**1.686**	**0.630**	-0.350	0.980
	(0.174)	(0.276)	(0.165)	**(0.012)**	(0.752)	**(0.048)**	**(0.034)**	(0.531)	(0.163)
LIT	**-1.904**	-0.301	**-1.603**	**-1.249**	0.116	**-1.365**	-0.131	**0.695**	**-0.826**
	(0.008)	(0.702)	**(0.017)**	**(0.013)**	(0.840)	**(0.058)**	(0.689)	**(0.019)**	**(0.008)**
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.122	0.021	0.075	0.108	0.060	0.091	0.127	0.108	0.118

Notes:

1. The table presents results of the regression models of absolute abnormal accruals (Panel A) and signed abnormal accruals (Panel B), separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column). The Difference column reports the difference between the two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See Appendix 3.A for variable definitions.

2. The interactions model:

$$|EMJ_i| \text{ or } EMJ_i = \alpha + \beta_1 INST_i + \beta_2 RECON + \beta_3 OWNER_i + \beta_4 AUD_i + \beta_5 IPO_i + \beta_6 UW_i + \beta_7 SOX + \beta_8 FSIZE_i + \beta_9 PROFIT + \beta_{10} LEV_i + \beta_{11} CFO_i + \beta_{12} LIT_i + \gamma_1 INST_i * RECON_i + \gamma_2 INST_i * OWNER_i + \gamma_3 INST_i * AUD_i + \gamma_4 INST_i * IPO_i + \gamma_5 INST_i * UW_i + \gamma_6 INST_i * SOX_i + \gamma_7 INST_i * FSIZE_i + \gamma_8 INST_i * PROFIT_i + \gamma_9 INST_i * LEV_i + \gamma_{10} INST_i * CFO_i + \gamma_{11} INST_i * LIT_i + \varepsilon_t$$

We therefore conclude that reconciliations do not have a strong effect on earnings management in foreign IPOs, as the coefficient on *RECON* is insignificant throughout. We also confirm that IPOs from strong country institutions report more extreme earnings than their US IPO equivalents as well as foreign IPOs from weak home institutions. However, that IPOs from countries with weak institutions report more often under US GAAP may explain the findings they do not inflate earnings more than their US IPO equivalents once we control for underlying GAAP. At the same time, we cannot rule out that IPOs from weak country institutions inflate earnings less than foreign IPOs from strong home institution.

Foreign IPOs have the choice on which US exchange to list their shares. Frost et al. (2006) argue that disclosure rules, monitoring and enforcement may vary across exchanges and thus add an extra layer of monitoring and enforcement over and above that set by the SEC and other regulators. This opens up the possibility that the exchange selection is correlated with home institutions and reporting outcomes. We want to rule out the possibility that the selection of the specific exchange, rather than country-level institutions, drive our main results.[41] We therefore construct three new dummy variables, *NYSE*, *NASDAQ* and *AMEX*, to account for exchange membership in the New York Stock Exchange Inc., the Nasdaq Stock Market Inc. and the American Stock Exchange Inc., respectively. Panel D of Table 3.6 reports descriptive statistics for these variables. Most of foreign IPOs list on Nasdaq (66%) and less than 3% list on the AMEX. There is no discernible difference in exchange membership between weak and strong country institutions sub-samples.

We next change (9) and (10) to include the indicators *NYSE* and *NASDAQ* and report the findings in Table 3.11. The table has two panels and its structure is similar to that of Table 3.10. In both Panel A and Panel B the coefficients on *NYSE* and *NASDAQ* are insignificantly different from zero. There is no difference in these coefficients between the weak and strong home institutions sub-samples at conventional levels. The intercepts, and the difference in the intercepts between

[41] Specifically, it is possible that IPOs from strong home institutions want to maximize their reporting flexibility by selecting a "lenient" exchange believing they will not be scrutinized by the SEC as much as the other IPOs.

the two institutional sub-samples, are qualitatively the same in Panels A and B as in Tables 3.3 and 3.4, respectively. In addition, the inference we draw in the main analysis regarding the control variables remains intact.

Table 3.11: The Effect of US Exchange Membership

Panel A: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	|*EM1*|		|*EM2*|		|*EM3*|	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**15.772**	1.069		**11.513**	**2.865**		**5.663**	**2.260**	
	(0.020)	(0.512)		**(0.016)**	**(0.034)**		**(0.022)**	**(0.001)**	
INST			**14.703**			**8.648**			3.403
			(0.015)			**(0.059)**			(0.141)
NYSE	-4.498	0.409	-4.907	-0.871	0.037	-0.907	-1.784	-0.357	-1.427
	(0.372)	(0.838)	(0.386)	(0.582)	(0.977)	(0.667)	(0.323)	(0.444)	(0.430)
NASDAQ	-4.864	0.563	-5.427	-1.193	0.074	-1.267	-1.746	-0.495	-1.251
	(0.332)	(0.740)	(0.327)	(0.454)	(0.947)	(0.565)	(0.326)	(0.208)	(0.478)
OWNER	1.123	**4.008**	**-2.885**	0.054	**1.922**	**-1.868**	0.333	**1.338**	**-1.005**
	(0.264)	**(0.063)**	**(0.057)**	(0.946)	**(0.033)**	**(0.008)**	(0.110)	**(0.000)**	**(0.005)**
AUD	**1.927**	**1.807**	0.120	0.291	0.729	-0.438	**0.407**	**0.388**	0.019
	(0.008)	**(0.092)**	(0.876)	(0.794)	(0.202)	(0.660)	**(0.078)**	**(0.036)**	(0.891)
IPO	-0.905	-0.415	-0.490	-0.228	**0.229**	-0.457	-0.230	0.068	-0.297
	(0.112)	(0.449)	(0.490)	(0.515)	**(0.071)**	(0.238)	(0.282)	(0.560)	(0.248)
UW	-0.238	-0.145	-0.094	**-0.222**	-0.079	-0.143	**-0.080**	0.040	**-0.121**
	(0.212)	(0.719)	(0.794)	**(0.008)**	(0.734)	(0.491)	**(0.074)**	(0.598)	**(0.089)**
SOX	-0.072	**-1.532**	**1.460**	0.102	**-0.784**	**0.886**	0.156	**-0.369**	**0.525**
	(0.910)	**(0.040)**	**(0.011)**	(0.829)	**(0.011)**	**(0.030)**	(0.528)	**(0.027)**	**(0.024)**
FSIZE	**-0.555**	**-0.149**	**-0.406**	**-0.420**	**-0.162**	-0.258	**-0.172**	**-0.159**	-0.013
	(0.041)	**(0.016)**	**(0.090)**	**(0.018)**	**(0.012)**	(0.102)	**(0.000)**	**(0.000)**	(0.774)
PROFIT	-0.108	0.128	-0.236	0.063	0.132	-0.069	0.003	**0.084**	-0.080
	(0.141)	(0.527)	(0.350)	(0.357)	(0.271)	(0.688)	(0.832)	**(0.078)**	(0.130)
LEV	0.167	-0.126	0.293	-0.193	-0.618	0.425	-0.103	0.376	-0.479
	(0.773)	(0.897)	(0.723)	(0.402)	(0.181)	(0.387)	(0.422)	(0.301)	(0.203)
CFO	1.465	**-1.602**	3.067	0.792	-0.404	1.195	0.353	0.382	-0.029
	(0.243)	**(0.100)**	(0.122)	(0.235)	(0.110)	(0.147)	(0.135)	(0.413)	(0.957)
LIT	**-1.383**	-0.446	-0.938	-0.625	-0.586	-0.038	-0.009	0.256	-0.265
	(0.051)	(0.553)	(0.227)	(0.178)	(0.185)	(0.950)	(0.954)	(0.335)	(0.475)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.200	0.023	0.120	0.125	0.115	0.126	0.247	0.155	0.203

Table 3.6: The Effect of US Exchange Membership (continued)

Panel B: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			***EM2***			***EM3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**16.229**	1.925		**11.177**	1.245		**6.945**	**3.035**	
	(0.024)	(0.276)		**(0.065)**	(0.380)		**(0.017)**	**(0.000)**	
INST			**14.304**			**9.932**			3.909
			(0.023)			**(0.058)**			(0.134)
NYSE	-4.631	0.700	-5.331	-0.797	0.446	-1.243	-1.329	-0.223	-1.105
	(0.363)	(0.732)	(0.338)	(0.712)	(0.763)	(0.602)	(0.528)	(0.694)	(0.601)
NASDAQ	-5.436	0.792	-6.229	-1.277	0.598	-1.874	-1.773	-0.265	-1.508
	(0.289)	(0.655)	(0.263)	(0.585)	(0.645)	(0.470)	(0.427)	(0.620)	(0.507)
OWNER	0.736	2.801	-2.065	0.424	1.472	-1.048	-0.127	-0.428	0.300
	(0.306)	(0.201)	(0.253)	(0.464)	(0.289)	(0.396)	(0.733)	(0.295)	(0.388)
AUD	**1.573**	1.762	-0.189	0.412	1.142	-0.730	0.437	0.302	0.135
	(0.051)	(0.123)	(0.812)	(0.721)	(0.247)	(0.489)	(0.299)	(0.477)	(0.780)
IPO	-0.915	-0.496	-0.419	-0.302	0.046	-0.348	-0.133	-0.201	0.068
	(0.150)	(0.352)	(0.564)	(0.308)	(0.834)	(0.450)	(0.494)	(0.204)	(0.780)
UW	-0.215	-0.223	0.008	-0.050	-0.075	0.026	**-0.107**	-0.086	-0.021
	(0.196)	(0.606)	(0.982)	(0.733)	(0.828)	(0.934)	**(0.012)**	(0.528)	(0.860)
SOX	-0.247	**-1.419**	**1.172**	-0.333	**-0.925**	0.592	0.163	-0.015	0.179
	(0.712)	**(0.061)**	**(0.029)**	(0.518)	**(0.028)**	(0.220)	(0.604)	(0.915)	(0.553)
FSIZE	**-0.549**	**-0.145**	-0.404	**-0.529**	**-0.136**	**-0.394**	**-0.244**	**-0.114**	**-0.131**
	(0.080)	**(0.014)**	(0.172)	**(0.024)**	**(0.017)**	**(0.076)**	**(0.000)**	**(0.006)**	**(0.073)**
PROFIT	-0.042	0.152	-0.194	**0.212**	0.202	0.009	**0.106**	0.118	-0.012
	(0.551)	(0.453)	(0.459)	**(0.099)**	(0.138)	(0.966)	**(0.093)**	(0.178)	(0.899)
LEV	0.130	-0.224	0.354	-0.119	-0.517	0.398	-0.166	0.208	-0.374
	(0.874)	(0.828)	(0.684)	(0.592)	(0.307)	(0.391)	(0.417)	(0.433)	(0.244)
CFO	1.352	-1.212	2.564	**1.496**	0.028	1.468	0.501	-0.207	0.708
	(0.344)	(0.250)	(0.252)	**(0.034)**	(0.940)	(0.136)	(0.108)	(0.749)	(0.370)
LIT	**-1.533**	-0.170	**-1.364**	**-1.088**	0.140	**-1.228**	-0.047	**0.657**	**-0.704**
	(0.047)	(0.808)	**(0.034)**	**(0.040)**	(0.798)	**(0.071)**	(0.898)	**(0.018)**	**(0.034)**
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.135	-0.003	0.072	0.103	0.053	0.086	0.162	0.089	0.126

Notes:

1. The table presents results of the regression models of absolute abnormal accruals (Panel A) and signed abnormal accruals (Panel B), separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column). The Difference column reports the difference between the two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See Appendix 3.A for variable definitions.

2. The interactions model:

$$
\begin{aligned}
|EMJ_i| \text{ or } EMJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 NYSE + \beta_3 NASDAQ + \beta_4 OWNER_i + \beta_5 AUD_i + \beta_6 IPO_i + \beta_7 UW_i + \beta_8 SOX \\
& + \beta_9 FSIZE_i + \beta_{10} PROFIT + \beta_{11} LEV_i + \beta_{12} CFO_i + \beta_{13} LIT_i \\
& + \gamma_1 INST_i * NYSE_i + \gamma_2 INST_i * NASDAQ_i + \gamma_3 INST_i * OWNER_i + \gamma_4 INST_i * AUD_i + \gamma_5 INST_i * IPO_i + \gamma_6 INST_i * UW_i \\
& + \gamma_7 INST_i * SOX_i + \gamma_8 INST_i * FSIZE_i + \gamma_9 INST_i * PROFIT_i + \gamma_{10} INST_i * LEV_i + \gamma_{11} INST_i * CFO_i + \gamma_{12} INST_i * LIT_i + \varepsilon_t
\end{aligned}
$$

Not all foreign IPOs issue shares or ADRs Level III exclusively in the US. Having an IPO simultaneously in both the US and home country (or another country) is likely to diminish the incentives to adhere to US-based rules. That is, listing in another country outside the US implies that US institutions may not have an exclusive, or even a primary, effect. For this reason we construct a new indicator variable, *MULTI*, which is set equal to 1 if the IPO is also conducted outside the US, and zero otherwise. Panel D of Table 3.6 reveals that just over one fifth of the sample involves multi-listing. IPOs from countries with strong institutions tend to use multi listing to a greater extent than IPOs from countries with weak institutions (35% vs. 11%).

To control for a possible effect of multi-listing on our findings, we modify (9) and (10) by adding *MULTI* to the right-hand-side of these equations. In Table 3.12 we report the results of re-estimating these models. As before, the table has two panels, corresponding to Tables 3.3 and 3.4. The results of Table 3.8 are largely preserved in Panel A of Table 3.12. Similarly, the findings of Table 3.9Table 3.9 are largely intact as per Panel B. There is only very modest evidence that multi-listing is related to abnormal accruals, and mostly with respect to earnings inflation. In Panel B the coefficient on *MULTI* is positive and significant in both *EM1* (for the Weak column) and *EM3* models.

Table 3.12: The Effect of Multi-Listing

Panel A: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	|*EM1*|		|*EM2*|		|*EM3*|	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**11.515**	1.299		**10.217**	**2.910**		**4.287**	**1.853**	
	(0.002)	(0.588)		**(0.004)**	**(0.078)**		**(0.003)**	**(0.010)**	
INST			**10.217**			**7.307**			**2.434**
			(0.004)			**(0.022)**			**(0.093)**
MULTI	-0.923	1.063	**-1.985**	0.226	0.105	0.121	-0.086	0.146	-0.232
	(0.205)	(0.140)	**(0.086)**	(0.630)	(0.757)	(0.855)	(0.728)	(0.649)	(0.269)
OWNER	1.290	**4.483**	-3.193	-0.056	**1.974**	**-2.030**	**0.389**	**1.397**	**-1.008**
	(0.200)	**(0.080)**	(0.108)	(0.938)	**(0.035)**	**(0.009)**	**(0.078)**	**(0.002)**	**(0.031)**
AUD	**2.313**	1.838	0.474	0.418	0.732	-0.315	**0.495**	**0.372**	0.123
	(0.003)	(0.112)	(0.592)	(0.686)	(0.235)	(0.717)	**(0.023)**	**(0.053)**	(0.301)
IPO	-1.480	-0.095	**-1.385**	-0.118	**0.265**	-0.383	-0.332	0.064	-0.396
	(0.134)	(0.789)	**(0.089)**	(0.803)	**(0.079)**	(0.411)	(0.331)	(0.642)	(0.169)
UW	-0.265	-0.122	-0.143	**-0.247**	-0.076	-0.171	**-0.096**	0.017	**-0.114**
	(0.239)	(0.689)	(0.602)	**(0.006)**	(0.657)	(0.254)	**(0.067)**	(0.766)	**(0.059)**
SOX	-0.437	**-1.293**	0.856	0.235	**-0.764**	**0.999**	0.103	**-0.287**	0.391
	(0.632)	**(0.028)**	(0.229)	(0.611)	**(0.017)**	**(0.029)**	(0.707)	**(0.077)**	(0.140)
FSIZE	**-0.564**	**-0.184**	**-0.380**	**-0.406**	**-0.167**	**-0.239**	**-0.187**	**-0.155**	-0.032
	(0.020)	**(0.036)**	**(0.064)**	**(0.013)**	**(0.017)**	**(0.098)**	**(0.000)**	**(0.000)**	(0.584)
PROFIT	-0.094	0.156	-0.250	0.063	0.135	-0.072	0.013	0.087	-0.075
	(0.249)	(0.449)	(0.345)	(0.417)	(0.294)	(0.707)	(0.600)	(0.053)	(0.176)
LEV	0.416	-0.202	0.618	-0.212	-0.629	0.417	-0.048	0.399	-0.446
	(0.548)	(0.835)	(0.471)	(0.327)	(0.179)	(0.372)	(0.848)	(0.268)	(0.250)
CFO	1.854	-1.907	**3.761**	0.857	**-0.446**	1.303	0.382	0.403	-0.021
	(0.151)	(0.122)	**(0.085)**	(0.226)	**(0.042)**	(0.117)	(0.166)	(0.435)	(0.970)
LIT	**-1.495**	-0.484	-1.011	-0.708	-0.588	-0.120	-0.035	0.243	-0.278
	(0.019)	(0.537)	(0.233)	(0.163)	(0.178)	(0.851)	(0.858)	(0.375)	(0.490)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.191	0.035	0.120	0.128	0.121	0.130	0.216	0.153	0.185

Table 3.7 - The Effect of Multi-Listing (continued)

Panel B: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			*EM2*			*EM3*		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**11.048**	2.256		**9.649**	1.600		**5.037**	**2.760**	
	(0.015)	(0.357)		**(0.037)**	(0.301)		**(0.001)**	**(0.000)**	
INST			**8.792**			**8.049**			**2.277**
			(0.034)			**(0.032)**			**(0.049)**
MULTI	-0.347	**1.154**	**-1.501**	0.433	0.510	-0.077	**0.616**	**0.459**	0.157
	(0.458)	**(0.029)**	**(0.043)**	(0.373)	(0.149)	(0.911)	**(0.080)**	**(0.009)**	(0.676)
OWNER	0.682	3.281	-2.599	0.231	1.699	-1.468	-0.338	-0.218	-0.119
	(0.318)	(0.193)	(0.255)	(0.735)	(0.230)	(0.289)	(0.459)	(0.551)	(0.765)
AUD	**2.063**	1.808	0.255	0.569	1.169	-0.600	**0.604**	0.297	0.307
	(0.014)	(0.144)	(0.756)	(0.594)	(0.272)	(0.504)	**(0.070)**	(0.492)	(0.301)
IPO	-1.173	-0.157	-1.016	-0.075	0.224	-0.298	0.166	-0.098	0.264
	(0.193)	(0.653)	(0.212)	(0.850)	(0.181)	(0.543)	(0.410)	(0.494)	(0.296)
UW	-0.274	-0.186	-0.087	-0.085	-0.049	-0.036	**-0.154**	-0.100	-0.054
	(0.163)	(0.575)	(0.750)	(0.613)	(0.860)	(0.889)	**(0.001)**	(0.354)	(0.565)
SOX	-0.312	**-1.157**	0.845	-0.092	**-0.836**	0.744	0.472	0.126	0.346
	(0.701)	**(0.064)**	(0.117)	(0.866)	**(0.057)**	(0.249)	(0.244)	(0.363)	(0.355)
FSIZE	**-0.532**	**-0.181**	-0.350	**-0.505**	**-0.157**	**-0.347**	**-0.226**	**-0.123**	-0.103
	(0.060)	**(0.019)**	(0.161)	**(0.017)**	**(0.013)**	**(0.073)**	**(0.000)**	**(0.002)**	(0.106)
PROFIT	-0.032	0.184	-0.216	0.210	0.216	-0.007	**0.108**	0.130	-0.022
	(0.712)	(0.383)	(0.440)	(0.112)	(0.140)	(0.977)	**(0.073)**	(0.136)	(0.823)
LEV	0.284	-0.296	0.580	-0.175	-0.571	0.395	-0.239	0.199	-0.438
	(0.749)	(0.771)	(0.548)	(0.455)	(0.260)	(0.390)	(0.246)	(0.441)	(0.241)
CFO	1.755	-1.493	3.248	**1.566**	-0.147	**1.713**	0.522	-0.302	0.825
	(0.230)	(0.227)	(0.169)	**(0.037)**	(0.699)	**(0.096)**	(0.117)	(0.588)	(0.252)
LIT	**-1.750**	-0.220	**-1.529**	**-1.207**	0.125	**-1.331**	-0.178	**0.637**	**-0.815**
	(0.013)	(0.763)	**(0.028)**	**(0.010)**	(0.819)	**(0.035)**	(0.503)	**(0.027)**	**(0.004)**
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.114	0.009	0.066	0.107	0.061	0.091	0.153	0.103	0.129

Notes:

1. The table presents results of the regression models of absolute abnormal accruals (Panel A) and signed abnormal accruals (Panel B), separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column). The Difference column

reports the difference between the two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See Appendix 3.A for variable definitions.

2. The interactions model:

$$
\begin{aligned}
|EMJ_i| \text{ or } EMJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 MULTI + \beta_3 OWNER_i + \beta_4 AUD_i + \beta_5 IPO_i + \beta_6 UW_i + \beta_7 SOX \\
& + \beta_8 FSIZE_i + \beta_9 PROFIT + \beta_{10} LEV_i + \beta_{11} CFO_i + \beta_{12} LIT_i \\
& + \gamma_1 INST_i * MULTI_i + \gamma_2 INST_i * OWNER_i + \gamma_3 INST_i * AUD_i + \gamma_4 INST_i * IPO_i + \gamma_5 INST_i * UW_i \\
& + \gamma_6 INST_i * SOX_i + \gamma_7 INST_i * FSIZE_i + \gamma_8 INST_i * PROFIT_i + \gamma_9 INST_i * LEV_i \\
& + \gamma_{10} INST_i * CFO_i + \gamma_{11} INST_i * LIT_i + \varepsilon_t
\end{aligned}
$$

One point of departure of this study from LRW is that we investigate foreign IPOs in the US whereas they investigate cross-listed firms of which many are mature firms (that is, firms that have been cross-listed for some time).[42] We find that foreign firms from countries with strong home institutions manage earnings more, not less, than foreign firms from weak home institutions. Moreover, we find some evidence that IPOs from countries with weak institutions inflate earnings the same way as their US counterparts. In contrast, LRW find in their Table 3.10 that cross-listed firms from weak country institutions manage earnings more than firms from strong home institutions. Furthermore, they find that cross-listed firms from countries with strong institutions manage earnings at a level similar to that of US mature firms. Because we employ a different, and more recent, index for the strength of country institutions, we cannot safely rule out that the difference in the coding of home institutions as strong vs. weak is responsible for the differences in findings. To test for this possibility we re-run models 3.9 and 3.10 using the LRW's classification. Specifically, we replace *INST* with *INST_LRW* where *INST_LRW* = 1 or zero in accordance with LRW's Table 3.6. We report the findings in Table 3.13 using a two-panel structure as with the other sensitivity analyses. Before turning to the results, we note that 28 observations (or about 10% of the entire sample) we originally classify as coming from countries with strong institutions are now classified as coming from countries with weak institutions. Inspection of both panels of Table 3.13 reveals no considerable change relative to Tables 3.3 and 3.4. This notwithstanding, we find that litigations has greater explanatory power in that in *both* panels it restrains earnings management in IPOs from countries with strong institutions more than IPOs from countries with weak institutions. Additionally, SOX loses explanatory power that was previously reported. Overall, we conclude that the difference in the findings of the two papers is not attributable to the different coding of the strength of home institutions.

[42] In Table 1 LRW report their sample comprises 698 firm-year observations corresponding to 181 unique cross-listed firms.

Table 3.13: Using the Lang et al. (2006) Classification

Panel A: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

		EM1				*EM2*				*EM3*	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**6.450**	-0.697		**5.100**	0.317		**4.073**	0.634	
	(0.051)	(0.517)		**(0.009)**	(0.616)		**(0.004)**	(0.182)	
INST_LRW			**7.147**			**4.783**			**3.439**
			(0.047)			**(0.012)**			**(0.019)**
OWNER	**7.177**	1.298	**5.879**	3.927	0.267	3.660	**1.749**	**0.841**	0.908
	(0.056)	(0.269)	**(0.099)**	(0.133)	(0.579)	(0.156)	**(0.071)**	**(0.000)**	(0.369)
AUD	**2.057**	0.356	**1.701**	**0.967**	0.084	0.883	**0.384**	**0.374**	0.010
	(0.009)	(0.250)	**(0.054)**	**(0.041)**	(0.705)	(0.157)	**(0.042)**	**(0.032)**	(0.971)
IPO	**-1.802**	-0.027	**-1.774**	-0.673	0.278	**-0.951**	**-0.489**	0.080	**-0.569**
	(0.056)	(0.876)	**(0.076)**	(0.169)	(0.141)	**(0.060)**	**(0.087)**	(0.516)	**(0.045)**
UW	-0.382	0.039	-0.421	-0.204	0.020	-0.223	-0.117	0.027	-0.144
	(0.427)	(0.662)	(0.352)	(0.393)	(0.463)	(0.341)	(0.277)	(0.394)	(0.203)
SOX	-0.268	-0.368	0.101	-0.360	0.111	-0.471	-0.043	-0.031	-0.012
	(0.639)	(0.368)	(0.864)	(0.289)	(0.371)	(0.186)	(0.840)	(0.822)	(0.960)
FSIZE	**-0.428**	-0.000	**-0.428**	**-0.283**	-0.010	**-0.273**	**-0.204**	**-0.075**	**-0.129**
	(0.065)	(0.993)	**(0.066)**	**(0.010)**	(0.835)	**(0.008)**	**(0.000)**	**(0.011)**	**(0.012)**
PROFIT	0.101	-0.198	**0.298**	**0.224**	**-0.254**	**0.478**	**0.118**	-0.086	0.203
	(0.546)	(0.177)	**(0.067)**	**(0.004)**	**(0.007)**	**(0.000)**	**(0.002)**	(0.504)	(0.154)
LEV	0.385	0.555	-0.170	-0.160	-0.304	0.144	0.232	0.103	0.130
	(0.766)	(0.182)	(0.881)	(0.783)	(0.150)	(0.810)	(0.609)	(0.669)	(0.737)
CFO	-1.334	-0.661	-0.673	-0.986	-0.145	-0.841	-0.694	0.269	-0.964
	(0.459)	(0.127)	(0.735)	(0.319)	(0.456)	(0.441)	(0.221)	(0.329)	(0.129)
LIT	**-1.950**	-0.020	**-1.930**	**-1.447**	-0.116	**-1.331**	**-0.488**	**0.386**	**-0.875**
	(0.025)	(0.956)	**(0.008)**	**(0.039)**	(0.454)	**(0.029)**	**(0.066)**	**(0.045)**	**(0.000)**
N	105	151	256	105	151	256	105	151	256
Adj R^2	0.050	-0.027	0.052	0.077	0.065	0.130	0.175	0.102	0.171

Table 3.8: Using the Lang et al. (2006) Classification (continued)

Panel B: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			***EM2***			***EM3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**6.425**	0.007		2.806	1.360		**3.753**	**1.343**	
	(0.032)	(0.995)		(0.262)	(0.148)		**(0.002)**	**(0.067)**	
INST_LRW			**6.418**			1.447			**2.410**
			(0.034)			(0.623)			**(0.077)**
OWNER	5.803	0.355	5.448	5.138	0.154	4.984	1.058	**-0.897**	**1.956**
	(0.107)	(0.748)	(0.139)	(0.131)	(0.848)	(0.158)	(0.415)	**(0.011)**	**(0.092)**
AUD	**1.984**	0.356	**1.628**	1.083	**0.530**	0.553	**0.556**	-0.200	**0.756**
	(0.011)	(0.329)	**(0.048)**	(0.204)	**(0.059)**	(0.573)	**(0.094)**	(0.318)	**(0.052)**
IPO	**-1.588**	-0.079	-1.508	-0.965	0.076	-1.040	-0.446	-0.246	-0.200
	(0.089)	(0.710)	(0.162)	(0.139)	(0.781)	(0.120)	(0.120)	(0.287)	(0.632)
UW	-0.386	-0.036	-0.350	-0.185	0.009	-0.193	-0.170	-0.051	-0.119
	(0.481)	(0.675)	(0.506)	(0.627)	(0.852)	(0.606)	(0.329)	(0.315)	(0.524)
SOX	-0.291	-0.416	0.125	-0.152	**-0.293**	0.142	0.083	0.077	0.006
	(0.649)	(0.284)	(0.812)	(0.774)	**(0.052)**	(0.772)	(0.830)	(0.515)	(0.989)
FSIZE	**-0.397**	0.019	**-0.417**	**-0.245**	**-0.106**	-0.139	**-0.174**	-0.010	**-0.164**
	(0.071)	(0.643)	**(0.049)**	**(0.020)**	**(0.033)**	(0.153)	**(0.001)**	(0.825)	**(0.016)**
PROFIT	0.082	-0.006	0.088	**0.293**	-0.104	0.397	**0.126**	0.109	0.018
	(0.643)	(0.951)	(0.613)	**(0.009)**	(0.580)	(0.146)	**(0.002)**	(0.437)	(0.903)
LEV	0.296	0.284	0.013	-0.396	-0.327	-0.069	-0.130	0.129	-0.259
	(0.820)	(0.664)	(0.992)	(0.466)	(0.247)	(0.914)	(0.625)	(0.644)	(0.600)
CFO	0.011	-0.601	0.612	-0.708	**0.502**	-1.210	0.777	-0.378	1.155
	(0.996)	(0.202)	(0.796)	(0.420)	**(0.005)**	(0.207)	(0.237)	(0.200)	(0.148)
LIT	**-1.726**	0.235	**-1.961**	**-1.103**	0.187	**-1.290**	-0.293	**0.831**	**-1.124**
	(0.015)	(0.621)	**(0.008)**	**(0.072)**	(0.631)	**(0.026)**	(0.502)	**(0.021)**	**(0.031)**
N	105	151	256	105	151	256	105	151	256
Adj R^2	0.018	-0.055	0.017	0.061	0.056	0.101	0.056	0.127	0.098

Notes:

1. The table presents results of the regression models of abnormal accruals reported (Panel A) and signed abnormal accruals (Panel B), separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column) based on the classification presented in LRW. The Difference column reports the difference between the two sub-sample coefficients using the interactions

model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See Appendix 3.A for variable definitions.

2. The interactions model:

$$\begin{aligned}|EMJ_i| \text{ or } EMJ_i = {} & \alpha + \beta_1 INST\_LRW_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX \\ & + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_{10} CFO_i + \beta_{11} LIT_i \\ & + \gamma_1 INST\_LRW_i * OWNER_i + \gamma_2 INST\_LRW_i * AUD_i + \gamma_3 INST\_LRW_i * IPO_i \\ & + \gamma_4 INST\_LRW_i * UW_i + \gamma_5 INST\_LRW_i * SOX_i + \gamma_6 INST\_LRW_i * FSIZE_i \\ & + \gamma_7 INST\_LRW_i * PROFIT_i + \gamma_8 INST\_LRW_i * LEV_i + \gamma_9 INST\_LRW_i * CFO_i \\ & + \gamma_{10} INST\_LRW_i * LIT_i + \varepsilon_t\end{aligned}$$

When discussing Table 3.6 we noted that a large number of IPOs come from China (51 observations), Israel (48), UK (29) and Canada (27). To examine whether a particular country drives the results we re-run (9) and (10) including a country-fixed effect for each country individually and separately. We also exclude each country in turn from the full sample; in both cases our main inferences remain the same. In Table 3.14 we report findings when we include four country fixed effects for these countries. As before, we have Panel A for |*EM1*|-|*EM3*| and Panel B for *EM1-EM*. Comparing Panels A and B to Table 3.3 and 3.4, respectively, indicates that our main inferences remain unchanged. In addition, there is no consistent effect to any of the country dummies (*CHINA*, *ISRAEL*, *UK* and *CANADA*). We also excluded China from the sample, but did not find our inference changes.

Table 3.14: Controlling for Country Effects

Panel A: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

		EM1				*EM2*				*EM3*	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**12.870**	1.920	1.920	**9.978**	2.582		**4.268**	**1.841**	
	(0.002)	(0.382)	(0.383)	**(0.002)**	(0.104)		**(0.006)**	**(0.012)**	
INST			**10.950**			**7.396**			2.427
			(0.002)			**(0.010)**			(0.135)
CANADA	**-1.154**		**-1.154**	0.417		0.417	-0.023		-0.023
	(0.018)		**(0.018)**	(0.458)		(0.458)	(0.941)		(0.940)
CHINA		-0.518	-0.518		0.285	0.285		0.080	0.080
		(0.570)	(0.570)		(0.250)	(0.250)		(0.705)	(0.706)
ISRAEL		-0.250	-0.250		0.342	0.342		-0.006	-0.006
		(0.753)	(0.753)		(0.210)	(0.210)		(0.959)	(0.959)
UK	-0.978		-0.978	-0.396		-0.396	0.105		0.105
	(0.505)		(0.505)	(0.546)		(0.546)	(0.726)		(0.721)
OWNER	1.217	4.294	-3.077	0.124	**1.769**	**-1.646**	0.345	**1.290**	**-0.945**
	(0.293)	(0.105)	(0.112)	(0.895)	**(0.068)**	**(0.024)**	(0.216)	**(0.001)**	**(0.029)**
AUD	**2.021**	1.750	0.272	0.478	0.773	-0.295	**0.493**	**0.383**	0.110
	(0.023)	(0.133)	(0.750)	(0.615)	(0.206)	(0.720)	**(0.010)**	**(0.045)**	(0.113)
IPO	-0.846	-0.449	-0.397	-0.514	0.178	-0.691	**-0.249**	0.062	-0.311
	(0.146)	(0.434)	(0.580)	(0.196)	(0.501)	(0.202)	**(0.077)**	(0.706)	(0.207)
UW	**-0.353**	-0.107	-0.246	**-0.233**	-0.085	-0.147	-0.098	0.016	**-0.115**
	(0.087)	(0.739)	(0.345)	**(0.004)**	(0.620)	(0.279)	(0.126)	(0.780)	**(0.078)**
SOX	0.063	**-1.381**	**1.444**	0.072	**-0.878**	**0.950**	0.146	**-0.363**	0.509
	(0.935)	**(0.010)**	**(0.037)**	(0.894)	**(0.001)**	**(0.062)**	(0.610)	**(0.020)**	(0.108)
FSIZE	**-0.589**	**-0.182**	**-0.407**	**-0.394**	**-0.144**	**-0.251**	**-0.188**	**-0.149**	-0.039
	(0.019)	**(0.072)**	**(0.056)**	**(0.012)**	**(0.016)**	**(0.075)**	**(0.001)**	**(0.000)**	(0.515)
PROFIT	-0.118	0.150	-0.268	0.060	0.121	-0.061	0.014	**0.080**	-0.065
	(0.226)	(0.441)	(0.297)	(0.492)	(0.309)	(0.744)	(0.602)	**(0.077)**	(0.241)
LEV	0.287	-0.227	0.514	-0.169	-0.555	0.387	-0.063	0.409	-0.472
	(0.643)	(0.782)	(0.560)	(0.433)	(0.228)	(0.424)	(0.773)	(0.246)	(0.214)
CFO	1.460	-1.708	**3.168**	0.788	**-0.396**	1.184	0.389	0.444	-0.055
	(0.238)	(0.123)	**(0.080)**	(0.252)	**(0.072)**	(0.132)	(0.183)	(0.344)	(0.919)
LIT	**-1.751**	-0.400	**-1.351**	-0.761	-0.615	-0.146	-0.019	0.245	-0.265
	(0.016)	(0.561)	**(0.059)**	(0.138)	(0.162)	(0.805)	(0.917)	(0.323)	(0.478)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.190	0.025	0.116	0.127	0.120	0.128	0.210	0.146	0.179

Table 3.9: Controlling for Country Effects (continued)

Panel B: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			*EM2*			*EM3*		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**12.769**	3.076	3.076	**9.419**	1.530		**5.296**	**2.892**	
	(0.011)	(0.189)	(0.190)	**(0.031)**	(0.347)		**(0.000)**	**(0.000)**	
INST			**9.693**			**7.889**			**2.404**
			(0.018)			**(0.022)**			**(0.038)**
CANADA	**-1.446**		**-1.446**	0.283		0.283	-0.249		-0.249
	(0.049)		**(0.049)**	(0.670)		(0.670)	(0.123)		(0.111)
CHINA		-0.855	-0.855		0.012	0.012		**-0.383**	**-0.383**
		(0.412)	(0.412)		(0.959)	(0.959)		**(0.005)**	**(0.005)**
ISRAEL		-0.250	-0.250		0.283	0.283		0.284	0.284
		(0.718)	(0.718)		(0.330)	(0.330)		(0.364)	(0.366)
UK	-1.166		-1.166	-0.030		-0.030	0.017		0.017
	(0.468)		(0.468)	(0.960)		(0.960)	(0.947)		(0.946)
OWNER	0.737	3.232	-2.496	0.363	1.463	-1.100	-0.245	-0.221	-0.024
	(0.394)	(0.254)	(0.312)	(0.579)	(0.300)	(0.344)	(0.616)	(0.472)	(0.957)
AUD	**1.740**	1.667	0.072	0.636	1.164	-0.528	**0.592**	0.233	0.359
	(0.079)	(0.183)	(0.934)	(0.524)	(0.272)	(0.552)	**(0.067)**	(0.593)	(0.296)
IPO	-0.764	-0.671	-0.094	-0.411	-0.047	-0.364	-0.037	**-0.515**	**0.478**
	(0.203)	(0.318)	(0.902)	(0.225)	(0.873)	(0.514)	(0.842)	**(0.057)**	**(0.098)**
UW	**-0.355**	-0.165	-0.189	-0.061	-0.051	-0.010	**-0.141**	-0.096	-0.044
	(0.053)	(0.634)	(0.475)	(0.677)	(0.854)	(0.967)	**(0.001)**	(0.378)	(0.600)
SOX	-0.021	**-1.121**	**1.100**	-0.310	**-0.945**	0.635	0.249	0.204	0.044
	(0.978)	**(0.024)**	**(0.029)**	(0.599)	**(0.048)**	(0.283)	(0.461)	(0.147)	(0.872)
FSIZE	**-0.563**	**-0.188**	-0.374	**-0.498**	**-0.135**	**-0.363**	**-0.232**	**-0.115**	**-0.117**
	(0.052)	**(0.068)**	(0.134)	**(0.017)**	**(0.021)**	**(0.064)**	**(0.000)**	**(0.003)**	**(0.077)**
PROFIT	-0.064	0.191	-0.254	0.211	0.204	0.007	**0.104**	0.137	-0.033
	(0.500)	(0.345)	(0.350)	(0.132)	(0.146)	(0.977)	**(0.089)**	(0.120)	(0.741)
LEV	0.252	-0.336	0.589	-0.105	-0.505	0.400	-0.139	0.240	-0.379
	(0.763)	(0.712)	(0.572)	(0.641)	(0.319)	(0.422)	(0.493)	(0.350)	(0.260)
CFO	1.464	-1.303	2.767	**1.640**	-0.028	**1.669**	**0.683**	-0.231	0.913
	(0.276)	(0.247)	(0.159)	**(0.020)**	(0.934)	**(0.072)**	**(0.024)**	(0.668)	(0.174)
LIT	**-2.022**	-0.115	**-1.908**	**-1.185**	0.132	**-1.318**	-0.154	**0.663**	**-0.817**
	(0.017)	(0.864)	**(0.005)**	**(0.034)**	(0.814)	**(0.052)**	(0.622)	**(0.039)**	**(0.015)**
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.123	0.001	0.068	0.097	0.052	0.082	0.121	0.109	0.116

Notes:

1. The table presents results of the regression models of absolute abnormal accruals (Panel A) and signed abnormal accruals (Panel B), separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column). The Difference column reports the difference between the two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See Appendix 3.A for variable definitions.
2. The interactions model:

$$
\begin{aligned}
|EMJ_i| \text{ or } EMJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 CANADA + \beta_3 CHINA + \beta_4 ISRAEL + \beta_5 OWNER_i + \beta_6 AUD_i + \beta_7 IPO_i + \\
& \beta_8 UW_i + \beta_9 SOX + \beta_{10} FSIZE_i + \beta_{11} PROFIT + \beta_{12} LEV_i + \beta_{13} CFO_i + \beta_{14} LIT_i \\
& + \gamma_1 INST_i * CANADA_i + \gamma_2 INST_i * CHINA_i + \gamma_3 INST_i * ISRAEL + \gamma_4 INST_i * OWNER_i + \\
& \gamma_5 INST_i * AUD_i + \gamma_6 INST_i * IPO_i + \gamma_7 INST_i * UW_i + \gamma_8 INST_i * SOX_i + \gamma_9 INST_i * FSIZE_i + \\
& \gamma_{10} INST_i * PROFIT_i + \gamma_{11} INST_i * LEV_i + \gamma_{12} INST_i * CFO_i + \gamma_{13} INST_i * LIT_i + \varepsilon_t
\end{aligned}
$$

The results presented so far suggest that IPOs from countries with strong institutions manage earnings more than both their US equivalents and IPOs from countries with weak home institutions. Additionally, we provide evidence that earnings inflation at foreign IPOs from weak home institutions is similar to that of US IPOs. This is broadly consistent with the notion that the strong institutions sub-sample trade-down by offering shares in the US while the weak home institutions sub-sample trade up. Nevertheless, since we do not code strong vs. weak relative to the US, this interpretation may be questionable. We noted earlier that, according to our index, the US is placed within the weak home institutions sub-sample. This is also consistent with Spamann's (2010) revised indices of the La Porta et al.'s (1998) and Djankov et al.'s (2008) indices. Specifically, the US scores 5 out of 5 in La Porta et al. (2008) and 3 out of 5 in Djankov et al. (2008). In contrast, it scores only 2 out of 6 in Spamann (2010). We have therefore re-ranked foreign IPOs relative to the US resulting in 216 IPOs classified as coming from countries with strong institutions and 75 from weak home institutions. That is, we have reclassified into the strong home institutions 83 IPOs that in the main analyses were classified as coming from countries with weak institutions. In Table 3.15 we present findings for models 3.9 and 3.10, replacing *INST* with *INST_US*. Once more, this table has two panels, A and B, corresponding to Tables 3.3 and 3.4. Starting with Panel A, the intercepts in the "Weak" columns are now all insignificantly different from zero while the intercepts in the "Strong" columns remain positive and statistically significant. This suggests that foreign IPOs coming from countries with weaker institutions than US institutions report earnings that are as variable as earnings reported by their US equivalents. This is clearly not the case for foreign IPOs from countries with institutions stronger than the US. In addition, the evidence on the constraining effect of SOX on earnings management is now much weaker than in Table 3.8.

Turning to Panel B, now there is less evidence of earnings inflation by IPOs from weaker home institutions. Nevertheless, the sign and significance of the intercept indicates that IPOs from stronger home institutions inflate earnings more than their US equivalents. However, we cannot rule out that IPOs from countries

with weaker institutions than the US inflate earnings less than IPOs from stronger home institutions, except in the case of *EM3*.

One concern with regard to interpreting these results is that the weaker (relative to the US) home institutions sub-sample is now small, and hence the power of the tests is diminished. We cannot fully alleviate this concern. Consistent with that we note that the R^2s in the "Weak" columns in Panel A are lower than their counterparts in Table 3.8. But the R^2s in the "Weak" columns in Panel B are as good as, and slightly better, than in Table 3.9. We therefore conclude that this evidence is supportive of the notion of "trading up" and a greater force of bonding on part of IPOs coming from countries with institutions weaker than the US. For IPOs coming from stronger home institutions, the evidence is consistent with a "trading down" effect.

Table 3.15: Above and Below US

Panel A: Absolute Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	|*EM1*|		|*EM2*|		|*EM3*|	
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**7.253**	-0.033		**7.148**	-0.270		**3.355**	0.450	
	(0.028)	(0.983)		**(0.006)**	(0.792)		**(0.001)**	(0.697)	
INST_US			**7.286**			**7.418**			**2.905**
			(0.051)			**(0.007)**			**(0.069)**
OWNER	2.427	0.707	1.720	0.717	1.582	-0.865	**0.796**	0.793	0.003
	(0.106)	(0.478)	(0.205)	(0.380)	(0.103)	(0.243)	**(0.000)**	(0.320)	(0.997)
AUD	**2.025**	0.512	1.513	0.481	0.491	-0.010	**0.430**	0.358	0.072
	(0.030)	(0.177)	(0.145)	(0.510)	(0.214)	(0.990)	**(0.041)**	(0.120)	(0.821)
IPO	**-1.009**	0.436	**-1.444**	-0.223	**0.725**	**-0.948**	-0.192	0.246	**-0.438**
	(0.063)	(0.162)	**(0.040)**	(0.378)	**(0.067)**	**(0.021)**	(0.338)	(0.181)	**(0.033)**
UW	-0.188	0.043	-0.231	-0.147	0.006	-0.154	-0.038	0.038	-0.076
	(0.492)	(0.379)	(0.392)	(0.336)	(0.907)	(0.342)	(0.530)	(0.298)	(0.283)
SOX	**-0.911**	-0.269	-0.642	-0.458	-0.094	-0.363	-0.194	-0.030	-0.164
	(0.089)	(0.201)	(0.197)	(0.149)	(0.641)	(0.103)	(0.158)	(0.833)	(0.245)
FSIZE	**-0.390**	-0.039	**-0.351**	**-0.297**	-0.047	**-0.250**	**-0.176**	-0.075	-0.101
	(0.007)	(0.504)	**(0.021)**	**(0.004)**	(0.305)	**(0.014)**	**(0.000)**	(0.188)	(0.137)
PROFIT	-0.080	-0.180	0.100	0.045	-0.086	0.131	0.027	-0.026	0.054
	(0.408)	(0.312)	(0.535)	(0.436)	(0.526)	(0.282)	(0.266)	(0.668)	(0.350)
LEV	0.005	-0.041	0.046	-0.370	-0.171	-0.199	0.035	0.277	-0.242
	(0.994)	(0.869)	(0.944)	(0.193)	(0.557)	(0.604)	(0.883)	(0.328)	(0.516)
CFO	0.400	-0.423	0.823	0.431	-0.314	0.745	0.494	-0.126	0.620
	(0.697)	(0.198)	(0.421)	(0.425)	(0.127)	(0.166)	(0.104)	(0.701)	(0.137)
LIT	**-1.634**	**0.585**	**-2.219**	**-0.949**	-0.132	**-0.817**	-0.112	**0.600**	**-0.712**
	(0.021)	**(0.054)**	**(0.001)**	**(0.031)**	(0.379)	**(0.044)**	(0.388)	**(0.037)**	**(0.008)**
N	216	75	291	216	75	291	216	75	291
Adj R^2	0.108	0.121	0.096	0.111	0.122	0.105	0.190	0.123	0.177

Table 3.10: Above and Below US (continued)

Panel B: Signed Abnormal Accruals of Foreign IPOs Analyzed between Strong and Weak Legal Institutions Countries

	EM1			***EM2***			***EM3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	**7.474**	2.099		**6.567**	0.033		**4.460**	0.092	
	(0.030)	(0.333)		**(0.040)**	(0.988)		**(0.000)**	(0.924)	
INST_US			5.375			**6.533**			**4.367**
			(0.173)			**(0.095)**			**(0.001)**
OWNER	1.768	-0.874	2.642	0.752	1.399	-0.647	-0.383	-0.519	0.136
	(0.166)	(0.245)	(0.136)	(0.379)	(0.212)	(0.396)	(0.295)	(0.428)	(0.795)
AUD	**1.988**	0.061	**1.927**	0.786	0.654	0.132	0.510	**-0.414**	**0.924**
	(0.047)	(0.723)	**(0.054)**	(0.466)	(0.119)	(0.911)	(0.131)	**(0.019)**	**(0.014)**
IPO	**-0.988**	-0.142	**-0.846**	**-0.445**	0.684	**-1.129**	**-0.323**	-0.228	-0.095
	(0.035)	(0.554)	**(0.041)**	**(0.035)**	(0.146)	**(0.022)**	**(0.013)**	(0.497)	(0.765)
UW	-0.218	-0.004	-0.214	-0.060	**0.094**	-0.155	-0.124	0.019	-0.143
	(0.445)	(0.939)	(0.462)	(0.794)	**(0.028)**	(0.496)	(0.133)	(0.673)	(0.144)
SOX	-0.898	-0.109	-0.788	-0.482	**-0.651**	0.169	0.105	0.284	-0.179
	(0.118)	(0.374)	(0.169)	(0.189)	**(0.043)**	(0.584)	(0.604)	(0.106)	(0.526)
FSIZE	**-0.380**	-0.074	**-0.306**	**-0.351**	-0.130	-0.222	**-0.185**	0.005	**-0.189**
	(0.011)	(0.402)	**(0.022)**	**(0.004)**	(0.119)	(0.114)	**(0.000)**	(0.926)	**(0.001)**
PROFIT	-0.015	-0.502	0.487	**0.174**	-0.224	**0.398**	**0.103**	-0.121	0.223
	(0.864)	(0.143)	(0.147)	**(0.082)**	(0.263)	**(0.055)**	**(0.055)**	(0.672)	(0.423)
LEV	-0.113	**0.858**	-0.972	-0.361	0.440	**-0.801**	-0.060	0.770	**-0.830**
	(0.853)	**(0.039)**	(0.122)	(0.180)	(0.293)	**(0.037)**	(0.625)	(0.122)	**(0.070)**
CFO	0.642	0.060	0.582	**1.057**	0.219	0.839	0.214	0.081	0.133
	(0.512)	(0.897)	(0.584)	**(0.038)**	(0.528)	(0.184)	(0.557)	(0.824)	(0.799)
LIT	**-1.602**	0.650	**-2.252**	**-1.004**	**0.652**	**-1.656**	0.072	0.766	-0.694
	(0.017)	(0.103)	**(0.001)**	**(0.011)**	**(0.028)**	**(0.000)**	(0.804)	(0.109)	(0.179)
N	216	75	291	216	75	291	216	75	291
Adj R^2	0.071	0.082	0.055	0.081	0.292	0.071	0.133	0.096	0.115

Notes:

1. The table presents results of the regression models of absolute abnormal accruals (Panel A) and signed abnormal accruals (Panel B), separately for the strong home institutions sub-sample (the Strong column) and the weak home institutions sub-sample (the Weak column) as classified with respect to the US institutions. The Difference column reports the difference between the two sub-sample coefficients using the interactions model described below. *p*-values appear below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). See

Appendix 3.A for variable definitions.

2. The interactions model:

$$
\begin{aligned}
|EMJ_i| \text{ or } EMJ_i = {} & \alpha + \beta_1 INST\_US_i + \beta_2 OWNER_i + \beta_3 AUD_i + \beta_4 IPO_i + \beta_5 UW_i + \beta_6 SOX \\
& + \beta_7 FSIZE_i + \beta_8 PROFIT + \beta_9 LEV_i + \beta_{10} CFO_i + \beta_{11} LIT_i \\
& + \gamma_1 INST\_US_i * OWNER_i + \gamma_2 INST\_US_i * AUD_i + \gamma_3 INST\_US_i * IPO_i + \gamma_4 INST_i\_US * UW_i \\
& + \gamma_5 INST\_US_i * SOX_i + \gamma_6 INST\_US_i * FSIZE_i + \gamma_7 INST\_US_i * PROFIT_i + \gamma_8 INST\_US_i * LEV_i \\
& + \gamma_9 INST\_US_i * CFO_i + \gamma_{10} INST\_US_i * LIT_i + \varepsilon_t
\end{aligned}
$$

We also conducted a number of additional tests, for which we have not tabulated the results. These include examining whether the location of the auditor matters. Specifically, we coded a revised *AUD* variable with the following values. Zero when the auditor is not a US auditor from a non-Big auditor as zero, one when the auditor is not a US auditor but from a Big audit firm, and two when the Auditor is a US-based auditor from a Big audit firm. Our main results remain unchanged. We also included a measure of board independence, with no effect on our inferences. Controlling for CEO age or tenure has equally no effect.

3.8 Summary and Conclusions

Foreign firms that conduct their IPOs in the US may be regarded as any other US firm. Issuing shares for the first time in the US subjects these firms to the US regulation and enforcement while, arguably, escaping the effect of home institutions. Moreover, relative to mature cross-listed firms, foreign IPOs are exposed to a higher level of scrutiny by the SEC and other US market participants. Both arguments combined suggest that foreign IPOs are least expected to be influenced by their home institutions in making their reporting choices.

In this paper we provide evidence pertaining to this prediction. Our findings indicate a higher level of earnings management in foreign IPOs in than US IPOs. We further find evidence of more extreme reporting (large positive or negative abnormal accruals), and of earnings inflation, in foreign IPOs. These findings are more pronounced for IPOs from countries with *strong* home legal institutions. This evidence is consistent with Licht's (2003) "trading down" argument and that bonding is not the overriding motivating factor in the decision to list in the US. We also note the contrast between our findings and that of LRW. After employing a number of sensitivity tests we cannot rule out that the difference in findings likely relates to differences in reporting incentives, information asymmetry and regulatory oversight between foreign IPOs and mature cross-listed firms. Why this is the case warrants further research.

Furthermore, a number of caveats may apply to our research design. First, throughout this empirical chapter, US IPO data is merely used to generate the model of normal accruals against which foreign IPO abnormal accruals are assessed, even though these firms themselves might be different from seasoned non-IPO US firms. An alternative research design could have proceeded based upon a model of normal accruals derived from non-IPO firms listed on US stock exchanges, and then applied to all IPOs, whether foreign or domestic. However, at this point in time this alternative design is very challenging due to the limited information available in digital format. Nonetheless, with information becoming more publically available this may be possible and less costly in the near future and could be an interesting methodology to utilize in future research.

Second, an alternative benchmark to assess the levels of normal accruals could have been made on mature domestic US firms. However, we believe that using domestic US IPOs as a benchmark is preferable due to the similarities between foreign IPOs and domestic IPOs in factors that are related firms' life cycle, such as growth.

Third, literature suggests various alternative measurements of earnings management and earnings quality. The empirical design of this empirical chapter uses three accruals models which are the most widely used in this literature but there are other models that we could have used as well. A possible extension of this study for future research would be to use alternative earnings quality measures.

Appendix 3. A: Variable Definitions

Variable	Definition	Source
EM1	Abnormal accruals in foreign firms calculated according to the modified Jones measure of abnormal accruals in Dechow et al. (1995)	COMPUSTAT and IPO Prospectus
EM2	Abnormal accruals in foreign firms calculated following Ashbaugh et al. (2003) and Kothari et al. (2005)	COMPUSTAT and IPO Prospectus
EM3	Abnormal accruals in foreign firms calculated according to the regression in Ball and Shivakumar (2008)	COMPUSTAT and IPO Prospectus
INST	An indicator variable that is set equal to 1 if the product of law enforcement index (the International Country Risk Guide – ICRG - Law and Order index) and the revised anti-director index of La Porta et al. (1998) for the home country is above the sample median, 0 otherwise	ICRG website and La Porta et al. (1998)
OWNER	The ratio of primary shares retained by insiders over all shares released and offered	IPO Prospectus
AUD	An indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990-1997, 1998-2001 and 2002 onwards, respectively; 0 otherwise	IPO Prospectus
IPO	An indicator variable that is set equal to 1 if the foreign registrant issues shares directly on the US market, 0 otherwise (i.e., for ADRs IPO = 0)	IPO Prospectus
UW	Underwriters Rank obtained from Jay Ritter's website on 06/05/2011	IPO Prospectus
SOX	An indicator variable that is set equal to 1 if the foreign IPO takes place on or after July 2002; 0 otherwise	
FSIZE	Natural logarithm of sales at the end of fiscal year preceding the IPO. The variable is indexed to 2005 value of US dollars	IPO Prospectus
LEV	The ratio of short and long term debt over total assets.	IPO Prospectus
PROFIT	Net Income the year preceding IPO over total sales of the same year	IPO Prospectus

CFO	The ratio of cash from operating activities over total assets	IPO Prospectus
LIT	An indicator variable that is set equal to 1 if the firm operates in a high-litigation industry and 0 otherwise where high litigation industries are industries with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374 as defined in Ashbaugh et al. (2003).	SDC Platinum and CRSP
RECON	An indicator variable that is set equal to 1 if the firm reports under other than US GAAP and provides reconciliation figures in notes. issues shares directly on the US market, 0 otherwise	IPO Prospectus
MULTI	An indicator variable that is set equal to 1 if the foreign registrant issues shares in more than one location, 0 otherwise	IPO Prospectus
CONTI	The product of law enforcement index (the International Country Risk Guide – ICRG - Law and Order index) and the revised anti-director index of La Porta et al. (1998) for the home country.	ICRG website and La Porta et al. (1998)
NYSE	An indicator variable that is set equal to 1 if the foreign registrant issues shares on the New York Stock Exchange	IPO Prospectus
NASDAQ	An indicator variable that is set equal to 1 if the foreign registrant issues shares on NASDAQ	IPO Prospectus
AMEX	An indicator variable that is set equal to 1 if the foreign registrant issues shares on the American Stock Exchange	IPO Prospectus

CHAPTER 4

THE EFFECTS OF HOME COUNTRY INSTITUTIONS AND THE SARBANES-OXLEY ACT ON UNDERPRICING OF FOREIN IPOs IN THE US

Chapter 4:
Paper 2-The Effects of Home Country Institutions and the Sarbanes-Oxley Act on Underpricing of Foreign IPOs in the US

4.1 Introduction

Information asymmetry problems and their effects on market participants have been at the center of attention of legislating bodies over the last few decades (Healy and Palepu, 2001; Connelly et al., 2011). The increase in the number of foreign companies seeking new capital in the US has promoted interest in studying the specific characteristics of these companies (Bruner et al., 1999, 2004; Doidge et al., 2009). Heterogeneity in ownership patterns, private benefits of control, institutional environments, media coverage and enforcement mechanisms have been proposed as explanations as to why information asymmetry problems differ between US and foreign firms listed in US capital markets (Frost and Pownall, 1994; Doidge et al., 2009; Bruner et al., 1999, 2004; and Bell et al., 2012).

In the context of initial public offerings (IPOs), information asymmetry problems have been suggested as the primary determinant of the level of underpricing (Ritter and Welch, 2002). In a cross-country setting, Hopp and Dreher (2013) document a significant relation between country-specific legal and institutional factors and levels of underpricing. They attribute these findings largely to accounting transparency that influences the flow and understanding of information, and to legal and institutional environments that affect the effectiveness of firm level corporate governance mechanisms.

As for foreign IPOs in the US, Bruner et al. (2004) find that, on a univariate basis, domestic firms experience a lower level of underpricing than foreign firms in the US during the period 1991-1999. They attribute their findings to the

observation that foreign firms are "larger in terms of assets and issue size relative to IPO issuers in their home markets" (pp. 39-40). They also argue that this evidence is consistent with Kim and Stulz (1988) and Marr et al. (1991) who assert that foreign IPOs in the US are of higher quality relative to their peers at home. These findings are in line with studies that are based on the "bonding hypothesis" and argue that firms can reduce or even avoid the negative effects of less developed institutions in their country of origin on their costs of capital by listing in overseas markets with more developed institutions. In doing so, they "bond" to the host country's legal institutions (Coffee, 1999; Stulz, 1999). In the extreme case, by issuing securities exclusively in the US, foreign firms may credibly commit to the US disclosure and enforcement rules. In terms of complying with reporting standards, this presumably makes them like any other US firm. Also, being seen as a local firm, foreign IPOs should be monitored and treated by US regulators and courts just as US IPOs. These arguments support the idea of irrelevance of home institutions for foreign IPOs' reported numbers.

However, more recent studies challenge the bonding hypothesis by casting doubts regarding the effectiveness of the enforcement and monitoring of regulations of foreign registrants in the US (Licht, 2000, 2003; Lang et al., 2006; Licht et al., 2011). For example, Licht (2000, 2003) posits that shareholders of foreign firms in the US have weaker legal remedies compared to the ones that are available to shareholders of domestic US firms. He also argues that the motivations to list in the US are actually cheap finance and enhancement of firm visibility rather than commitment to better corporate governance standards. Thus, if home legal institutions do not influence costs of capital as expressed in underpricing levels of foreign IPOs, there should be no statistically significant association between underpricing levels and the strength of home institutions. In light of the mixed evidence regarding the motivations and outcomes of listing in the US, I investigate the effects of home country institutions on information asymmetry problems of foreign IPOs in the US with reference to changes in underpricing levels.

In addition to the institutional environment at the country of origin, foreign firms may also be affected by changes in the legal environment at the targeted listing market; the US. The introduction of the Sarbanes-Oxley Act (SOX) in 2002 aimed to reduce cost of capital by attempting to mitigate information

asymmetry problems by improving the information environment in US capital markets. This was carried out by employing improved accounting and corporate governance mechanisms (Jain and Rezaee, 2006). For example, section 401 of the Act requires that all off-balance sheet transactions, obligations and other relevant information must be disclosed in the quarterly and annual reports. Furthermore, section 302(a) and its amendments in section 404 of the Act requires the chief executive officer, as well as the chief financial officer, of the reporting firm to certify each quarterly and annual reports. The executives ascertain and certify the veracity of the reports. As a result, management's involvement, responsibilities and legal liabilities have significantly increased.

The effects of SOX on information asymmetry problems have been extensively researched in recent years. This notwithstanding, not much is yet known with regard to the specific case of foreign issuers. The effect of SOX on foreign IPOs a-priori is unclear because these firms have been formed and developed outside the US and therefore predominantly they exist in very different institutional environments to the US.

Thus, this study also investigates the effect of SOX on information asymmetry problems of foreign IPOs in the US with reference to changes in underpricing levels. The rationale for using these changes as a proxy for information asymmetry problems is as follows. First, underpricing is expected to decrease as information asymmetry among investors becomes less severe (Michaely and Shaw, 1994; Rock, 1986). Second, SOX is expected to reduce underpricing levels in foreign IPOs due to the improvement in the reporting quality and consequently reducing the information asymmetry between IPO firms and investors. (Michaely and Shaw, 1995; Johnston and Madura, 2009). Underpricing is also related to the ability of investors to resolve disputes with managers and the extent to which managers are held accountable (Drake and Vetsuypens, 1993). This is a function of the legal remedies available to investors and the protection they can expect from regulatory and enforcement bodies such as the Securities and Exchange Commission (SEC). In the context of foreign IPOs, even though they commit to US institutions, this ability may still be a function of home institutions if not all disputes are resolved in accordance with

US rules and/or the enforcement of US law on foreign firms is weak. As I argue below, SOX may have reduced the effect of home legal institutions by setting tougher reporting and corporate governance requirements. Because institutions differ in their strengths across countries, any cross-country differential effect of SOX on underpricing of foreign IPOs may be a function of differences in the strength of home institutions.

For my empirical investigation, I construct a dataset consisting of 320 foreign IPOs in the US during the years 1990-2009. I compare the effect of SOX on underpricing while controlling for a number of factors previously identified in the literature as determinants of underpricing. In addition, I examine the effect of the institutional environments of the country of origin on underpricing by using two measures of the quality and strength of legal and enforcement factors in the home country. Based on these, I identify foreign IPO firms in the sample that come from strong or weak home institutions. I subsequently examine whether underpricing varies between strong and weak home institutions, again controlling for known influencing factors.

The empirical findings indicate significant lower levels of underpricing in the case of firms coming from strong institutional environments as opposed to those classified as weak. I find no evidence for a significant impact of SOX on the underpricing of foreign IPOs. There is also no evidence for a significant relation between home legal institutions and SOX with respect to underpricing. However, I find that in the post-SOX period the significant negative relation between auditors' prestige and underpricing levels has increased in magnitude relative to the pre-SOX period. When controlling for accounting conservatism, I find that accounting conservatism is negatively related to underpricing in firms that are coming from strong institutional environments. This corresponds with findings by Aerts and Cheng (2012) that find that accounting conservatism helps to reduce information asymmetry and as such is negatively associated with underpricing.

In addition to underpricing, I use an alternative measure of initial performance commonly referred to as investors' premium (Certo et al., 2003; Welbourne and Andrews, 1996; Aerts and Cheng, 2102; and Lester et al. 2005). This measure represents the perceived potential value of a firm since it is

calculated by the offer price minus the net book value per share deflated by the offer price. Findings indicate that firms that come from strong institutional environments enjoy a higher premium from investors. However, the magnitude of this premium reduces with an increase in conservative reporting. Evidence also suggests a reduction in premium in the post-SOX period.

This paper makes the following contributions. First, it adds to the existing body of literature on the effect of SOX on the reduction of agency problems (e.g., Johnston and Madura, 2009), in particular relating to the information asymmetry evidenced in the underpricing of foreign IPOs in the US. Second, it focuses specifically on the role played by the institutional differences at the country of origin before and after the enactment of SOX. Third, it sheds light on the differences in the role of the firm level governance mechanisms and their evolution subsequent to the enactment of SOX with respect to underpricing. These findings have direct implications for the ongoing debate about the competiveness of the US markets and the procedural costs associated with the Act and are of interest to both practitioners as well as policy makers.

The remainder of the paper is as follows: Section 4.2 discusses background information relevant to establish the main hypotheses for this paper. Section 4.3 presents the research design for the study. Section 4.4 describes the sample selection process and data collection. Section 4.5 presents and discusses the empirical results and Section 4.6 contains the concluding remarks.

4.2 Literature review and hypothesis development

Underpricing in IPOs is a well-documented phenomenon and is commonly defined as the percentage difference between first day closing price and the IPO's offer price. It captures the magnitude of 'leaving money on the table' (Loughran and Ritter, 2002) in a sense that a significant amount of the IPOs proceeds are forgone by the issuing owner-managers (Aggrawal et al., 2002). The first evidence goes back to the early 1970s with studies by Ibbotson (1975) and Logue (1973) that report significant underpricing in the US market. Ibbotson and Jaffe (1975) argue for a cyclical nature to the level of underpricing. Later, research

shows an apparent increase in the US underpricing levels throughout the years, from an average of 7.4% in the 1980s to about 65% in the late 1990s (Loughran and Ritter, 2004). A more recent study by Engelen and Van Essen (2010) documents an average level of underpricing of 21.14% in the US during 2000-2005. However, underpricing is not a US- specific phenomenon. Levis (1993) and Jenkinson (1990) report consistent underpricing in the UK market, Dawson (1987) documents significant levels of underpricing in Hong-Kong, Singapore and Malaysia. Other studies also document high levels of underpricing in China (Mok and Hui, 1998; Kimbro, 2005).

Generally, in alignment with shareholders interest, management aims at maximizing the proceeds from the IPO process will try to minimize underpricing (Loughran and Ritter, 2002). Thus, an understanding of the motivation to leave money on the table is needed to rationalize this documented global phenomenon. First, a positive relation between underpricing and after-issue trading volume suggests that underpricing attracts investors' attention and therefore promotes the issuing firm (Welch, 1992; Demers and Lewellen, 2003). Second, several authors argue that underpricing protects management from legal liabilities and accusations originating from investors' allegations of deceptive information in the listing documentation (Hughes and Thakor, 1992; Tinic, 1988). Third, other studies argue that underpricing assures a completion of sale of the underwriters' stocks and thus maximizing remuneration (Gordon and Jin, 1993).

Finally, one of the main motives for underpricing is commonly identified in the literature as asymmetric information among management and investors. Ritter and Welch (2002) suggest that when investors are less informed than the issuers, managers are encouraged to 'leave money on the table' in order to compensate uninformed investors for possible losses owing to information asymmetry; also known as the 'lemons problem' (Akerlof, 1970; Michaely and Shaw, 1994). In other words, IPOs are often subject to a high degree of private information, and thus, informed investors bid only on profitable issuers while uninformed investors have no comparative advantage when buying a stock of a new issuer. Moreover, these authors propose two scenarios for the case in which investors are more informed relative to the issuers about the market demand. In the first, investors are

equally informed and therefore buy only when price is below the true value. In the second and more realistic scenario, investors are not equally informed. Hence, the less informed investors are allocated both, high and low quality stocks. In contrast, informed investors are in a position to select the high quality stocks which are not overpriced. In order to mitigate the winner's curse, where the winner of the auction pays an overvalued price for the stocks (Thaler, 1988) and therefore to ensure that the uninformed investors break even on low quality stocks, all stocks are expected to be underpriced (Rock 1986; Levis, 1990). In fact, this reasoning is similar to that presented in the case of issuers that are more informed than investors but in this instance the information asymmetry is between two types of investors. This rationale can be identified with a specific information asymmetry problem, namely, the adverse selection problem.

Moreover, prior literature identifies two different occurrences of information asymmetry in the IPO process. Namely, information asymmetry can arise between the underwriters and issuers (Baron, 1982; Loughran and Ritter, 2002, Ritter, 2011) and management and investors (Welch, 1989; Benveniste and Spindt, 1989). In the latter case, information asymmetry problems can arise even in the early stages of an IPO i.e., the book-building process.

To date, most of the literature on underpricing focuses on firm-specific and issue- specific characteristics and mostly neglects country-specific characteristics (Engelen and van Essen, 2010). However, the institutional environments in which firms form and operate affect the compliance and enforcement of law, and are therefore directly linked to the effectiveness of business practices. Engelen and van Essen (2010) find that a country's legal framework and level of enforcement reduce the extent of underpricing. They argue that, in line with asymmetric information models on underpricing, the legal framework influences the *ex-ante* uncertainty with respect to post listing strategies and managerial decisions. This increases the uncertainty regarding the IPO valuation, which in turn, leads to higher underpricing levels. In addition, there is a higher uncertainty regarding investors' returns, and consequently regarding firms' cost of capital, in countries with weaker legal protection. This is attributed to the greater range of opportunities available for management and controlling shareholders to transfer

assets out of the firm at the minority shareholders' expense. This potential of misappropriation of firm's assets will increase the firm's cost of capital. Literature on cross-listed firms suggests that in order to reduce these negative effects, firms from countries with weak legal institutions list in overseas markets with stronger legal institutions, typically the US market. By doing so, they effectively "bond" to the host country's legal institutions and increase their liability with respect to minority shareholders' interests (Coffee 1999; Stulz, 1999). In the extreme case, cross-listing may even eliminate the relevance of their home country institutions. However, other studies argue that the regulations and enforcement mechanisms with regard to foreign firms in the US are of limited effectiveness. For example, Siegle (2005) argues that the SEC does not scrutinize foreign registrants. He also finds that the effectiveness of private litigation on foreign firms is constrained. Licht (2000 and 2003) finds evidence for weaker remedies for disputes involving shareholders of foreign firms than those of domestic US firms. In this paper, I study the potential impact of home country institutions on underpricing in the context of foreign IPOs in the US.

With regard to US markets, information asymmetry problems and their effects on market participants have been at the centre of attention of legislative organizations over the last few decades. Through the enactment of SOX in 2002, US regulators aimed to increase investor confidence in the US capital markets by reducing information asymmetry (Coates, 2007). This was to be accomplished through the implementation of stricter requirements, mostly auditing and reporting related, as well as new corporate governance mechanisms. For example, section 302 of the Act requires management certification of quarterly and annual reports. Also, section 401 enhances the off-balance sheet and pro-forma disclosures. In addition, section 204 sets the required audit committee standards, and aims to strengthen the independence and responsibilities of the audit committee. The main mandates of the Act are therefore to enhance the auditing quality and independence, and at the same time to increase management legal liabilities with respect to financial reporting and conducts.

As the introduction of the Act imposed substantial additional costs to both publicly listed firms (Carney, 2006) and companies in the process of going public

(Johnston and Madura, 2009), there has been an ongoing debate with regards to its effectiveness in recent years. In fact, evidence on the effect of SOX is controversial (Litvak, 2007; Coates, 2007; DeFond et al., 2005). One of the suggested impacts of the Act is a reduction in information asymmetry and its effects on the initial returns of new issuers in the US markets. Kaserer et al. (2008) conduct an empirical investigation into the effect of the SOX on underpricing of domestic IPOs in the US between 1990 and 2007. They find that in the post-SOX period, underpricing has decreased by about 5% compared with the pre-SOX period. They argue that most of the decrease can be explained by the reduction in the offer price adjustment that is taking place in the book-building process. The authors regard the decrease in underpricing as a direct evidence for reduction in information asymmetry in the post-SOX period. In addition, Johnston and Madura (2009) postulate that SOX affects the transparency of companies in the process of going public and therefore should have an impact on underpricing of IPOs. Thus, underpricing is assumed to be positively correlated to the level of asymmetric information (e.g., Baron, 1982; Loughran and Ritter, 2002, Ritter, 2011).

While the debate on the effectiveness of SOX has attracted a great deal of attention in literature ever since its enactment, it is of great interest to practitioners, policy-makers and regulators. Some argue that the substantial costs of the Act outweigh its benefits (Ribstein, 2002; Romano, 2005). This, together with the growing concern of a decline in the competitiveness of the US capital markets as a result of SOX, make the academic focus on the effects of the Act on issues such as underpricing of foreign IPOs very motivating and important for all parties involved. Therefore, the objective of this paper is to determine the effect of SOX information asymmetry of foreign IPOs in the US using underpricing as a proxy. To achieve this, a comparison of the level of underpricing for foreign IPOs in the US before and after the introduction of SOX is conducted.

The first hypothesis is that foreign IPOs from strong legal institutions at their country of origin experience less underpricing relative to those who come from weak home legal institutions. The second hypothesis of this paper is that SOX has reduced the level of asymmetric information between the issuer and

investors not only for domestic US companies as shown in prior research, but for foreign IPOs by affecting their specific characteristics. Consequently, the level of underpricing is expected to be lower in the post-SOX period than in the pre-SOX. The third hypothesis focuses both on the country of origin of the issuers and SOX. It suggests a reduction in underpricing following SOX for IPOs from both strong and weak home legal institutions, with a greater magnitude for the latter set of firms. However, there is no clear expected direction for this effect.

4.3 Research Design

Underpricing is a commonly incorporated proxy for information asymmetry and commonly measured by the first day return on initial public offerings i.e. the percentage difference between the offer price and closing stock price at the first day of trading (Loughran and Ritter, 2002). The level of underpricing may be affected by a number of factors in relation to the offering firm, industry affiliation and market characteristics.

I first study how differences between institutional environments in the country of firm origin are shown by the extent of underpricing and whether this relation had changed as a result of the structural adjustments following the enactment of SOX. To investigate this association, I employ two measurements which utilize widely recognized indices quantifying the rule of law, the protection of minority investors, and capital market characteristics of the home country institutions.

The first measurement follows Bruno and Claessens (2007) and Durnev and Kim (2005). I construct an index for strength home country institutions by taking the product the La Porta et al.'s (1998) index of anti-director rights, (as adjusted by Spamann (2010)[43]) and the International Country Risk Guide (ICRG) Law and Order index. The anti-director rights index covers aspects of *de-jure* regulation by capturing six sub-indices indicating "the possibility of voting by mail and of depositing shares, aspects of cumulative voting, oppressed minority, pre-emptive rights and the percentage of share capital to call a meeting" (Bruno and Claessens,

[43] Spamman (2010) shows that his revised index markedly differs from both La Porta et al.'s (1998) original index, as well as its later revision that is provided in Djankov et al. (2008).

2007, p. 15). On the other hand, the Law and Order index assesses the *de-facto* law and order traditions of a country as well as the legal system. I match the country and year specific scores with the year of the IPO. Thus, taken together, the first measurement for institutional environment used in this paper combines both *de-jure* and *de-facto* aspects of investor protection (Durnev and Kim, 2005; and Bruno and Claessens, 2007). Consistent with earlier studies, the sample is subsequently divided into above (below) the median groups and thus high (low) minority investor protection (Leuz et al. 2010 and Pinkowitz et al. 2006).

To test whether there is a difference in underpricing levels between firms from different institutional environment before and after SOX, I start by estimating the following regression model:

$$\begin{aligned} UP_i = \alpha + \beta_1 INST_i + \beta_2 SOX_i + \beta_3 AUD_i + \beta_4 UW_i + \beta_5 HOT_i + \\ \beta_6 INSIDER_i + \beta_7 AGE_i + \beta_8 HITECH_i + \beta_9 SIZE_i + \\ \beta_{10} ASSETS_i + \beta_{11} SALES_i + \beta_{12} LEV_i + \beta_{13} BUBBLE_i + \varepsilon_i \end{aligned} \qquad (4.1)$$

Where UP_i is a measure of underpricing level defined as the percentage difference between the offer price and closing stock price at the first day of trading. The variable $INST_i$ indicates the institutional setting of the home country. SOX_i serves as an indicator to pre- (post-) SOX listing and thus captures the effect of the Act. AUD_i indicates the prestige of the auditors. Johnston and Madura (2009) argue that the high prestige auditor certification lowers IPOs' initial returns and therefore that high quality auditors are associated with lower risk IPOs. UW_i ranks the offering's leading underwriter's prestige which is obtained from Jar Ritter's website. Underwriter prestige has been documented to have a positive impact on reducing information asymmetry in IPOs and even more specifically on underpricing (Balvers et al., 1988). The rationale behind this is that managers are willing to leave 'money on the table' in order to attract a prestigious underwriter with a highly influential analyst. This assures additional compensation for the underwriter in additional to the fixed fees as well as serving as an insurance instrument for underwriters against asymmetric information (Beatty and Welch, 1996). In contrast, Ritter (2011) argues that the stronger the

underwriter, the more the likelihood of them having an increased control over the level of the offer price. This compounded with the incentives to capture higher percentages of the "money left on the table" would lead to increased levels of underpricing. HOT_i controls for potential autocorrelation between IPOs returns taking place in specific periods in which markets look favorably on IPOs. It captures the lagged return on the market index in the 30 trading days prior to listing. Typically, firms are more likely to list their shares during such periods due to a momentum of relative ease in placing shares (Johnston and Madura, 2009; Bradley and Jordan, 2002). $INSIDER_i$ measures the ratio of primary shares retained by insiders to all shares outstanding after offer (Kaserer et al., 2011; Johnston and Madura, 2009). Inside ownership has been found to be positively correlated with underpricing as management will be more willing to leave money on the table if it retains a high proportion of the equity. This is explained by the lockup period that suggest that benefits from underpricing such as media coverage can yield higher price at the end of the lockup periods and therefore in alignment with the interests of the firms insiders (Aggarwal et al., 2002). AGE_i controls for the number of days between the firm establishment dates and the IPO date (Daily et al., 2005). The age of the firm is expected to increase the amount (and perhaps the quality) of information available to market participants, thus reducing the risk arising out of any uncertainty associated with the issue (Johnston and Madura, 2009). $HITECH_i$ is an indicator for a high-tech industry membership as this industry is characterized by high information asymmetry (Barth et al., 2001) and may also be particularly exposed to litigations risk (Johnson et al., 2001). $PROCEEDS_i$ measures the gross proceeds on the issue. Michaely and Shaw (1994) argue for a positive relationship between offering size and market scrutiny. Also, a large offering is expected to experience a higher demand on the initial day of the offering. $ASSETS_i$ controls for the firm's size and is defined as the logarithm of assets at the end of the fiscal year preceding the issuing (Loughran and Ritter, 2004). $SALES_i$ is defined as the log of sales at the end of the fiscal year preceding the issuing and is commonly used as a measure of risk compositing (Loughran and Ritter, 2004). LEV_i is measured by total debt over total assets at the end of the fiscal year preceding the issuing. It has been documented to have negative relation

between leverage and underpricing due to its monitoring role (Jensen, 1986; Leone et al., 2007). $BUBBLE_i$ controls for the abnormal returns documented during the internet bubble period (Ritter, 2011). A more detailed description of these variables is presented in Appendix 4.A.

In the regression Model 4.1, the coefficient on *INST* captures the incremental effect of the strength of home institutions on the intercept. For example, a positive sign implies that new issuers coming from strong institutional environments experience higher underpricing relative to IPOs from countries with weak institutions. However, if by listing in the US firms circumvent the influence of their home institutions regardless of their strength, the coefficient on *INST* is not expected to be statistically significant. In addition, in regression Model 4.1, a positive (negative) statistically significant coefficient on any of the vector variables implies a positive (negative) relation to underpricing.

One limitation of Model 4.1 is that it assumes that all the coefficients apart from *INST* are the same for foreign IPOs from both weak and strong legal environments. However, these issuers may be different according to their country of origin. In such cases, the restriction may not be economically justified. In order to test for differences between first time issues with respect to their institutional environment of the country of origin, I run Model 4.1 separately for the two subsamples and report the differences in the coefficients using interactions of *INST* with all of the vector variables. To the extent that underpricing is not affected by the IPOs home environment when listing in the US, the results for the two subsamples should not differ.

Finally, to test for the effects of SOX on underpricing, I run Model 4.1 separately for the pre- and post- SOX subsamples and report the differences in the coefficients using interactions of *SOX* with all of the explanatory variables. To the extent that SOX has no impact on underpricing in the case of foreign IPOs in the US, the results for the two subsamples should not differ.

4.4 Data, Sample Selection

There are numerous challenges in the suggested sample selection process. First, all foreign firms that made their initial public offering to the US between 1990 and 2009 are to be identified. According to the Security Data Corporation (SDC) New Issues database classification, foreign firms are firms that were incorporated and whose primary executive offices are located outside of the US.

Second, consistent with Bruner et al. (2006) the sample excludes equity listing that originated from spin-offs from publically-listed companies or from mergers and acquisitions. The sample selection eliminates any warrants, units and rights offerings. In addition, I exclude IPOs from financial institutions (4-digit SIC codes 6000-6999) and public utilities (4-digit SIC codes 4900-4949) due to the different structure of their financial statements and the different regulatory environments they operate in. Furthermore, firms that are based in the Bahamas, the Cayman Islands, and Bermuda were also removed from the selected sample. This is due to the fact that these companies are typically US or European firms within the financial services industry that are registered in these geographical locations for tax purposes and although they comply with the definition of foreign companies, they do not correspond to the conceptual framework of this research.

Third, IPO prospectuses are used to obtain the accounting and corporate governance variables needed for the empirical investigation. The primary sources for the prospectuses are the Edgar database provided by the SEC and the Perfect Filing database. Fourth, I obtain issue data manually from the prospectuses when non-U.S dollar figures are transformed to US dollar figures based on the exchange rates disclosed in prospectuses. Thereafter I index the US figures to 2005 US value based on the Consumer Price Index (CPI) as reported by the International Monetary Fund[44]. Fifth, I obtain data on the NASDAQ value weighted index from Bloomberg. Finally, I compute the first day return or underpricing by deducting the offer price collected from the prospectuses from the first stock closing price reported by the CRSP database after the IPO (Carter et al., 1998) where this is not more than two days following the offering. I also match the figure reported by

[44] Retrieved from http://www.imf.org/external/data.htm#data on April 2011

CRSP reported figure with that reported by SDC Platinum, and when the two do not match these were crossed checked with other public sources to obtain the most accurate first day closing price.

As reported in Panel A of Table 4.1, the final IPO sample comprises 320 listings. Panel B presents the industry composition of the sample according to the Fama-French (FF) 12-industry classification. This Panel shows that the largest group of IPOs in the sample is in the Business Equipment industry (FF6), followed by the Telephone and Television Transmission (FF7), and Manufacturing (FF3). Out of the overall sample, 215 are pre-SOX issues and 105 are post-SOX.

Panel C of Table 4.1 reports the distributions of IPOs according the country of origin in each four year window between 1990 and 2009. Consistent with other studies on foreign issuers in the US, the largest number of IPOs is from China (61), followed by Israel (54) and UK (31). Most of the IPOs come from the years before 2001, reflecting the burst of internet and dot.com bubble of 2001 and its effect on the high-tech sector which generates many IPOs (about 30% of the total sample).

Table 4.2 reports the Pearson's' pair-wise correlation coefficients of the variables contained in Model 4.1 as well as the ones used for the sensitivity analysis in subsection 4.3. There is no significant correlation between *UP* and *INST*, suggesting no effect of home institutions on underpricing in the univariate analysis. In contrast, *SOX*, *AGE* and *ASSETS* are negatively correlated with underpricing in this table. Finally, *HOT* and *BUBBLE* are positively correlated with underpricing. In the next section, I examine the effect of the above mentioned factors on underpricing with both with respect to home institutions and the enactment of SOX.

Table 4.1: Summary Statistics

Panel A: Sample Development

	Number of Firms
All SDC Platinum new US Foreign listings in years 1990-2009	677
Excluding observations:	
For which prospectus not available	196
With offering other than common/ordinary stock	118
For financial services firms and utilities	17
With insufficient financial data necessary for our analyses	16
Final Sample	**320**

Panel B: Sample Selection by Industry		**Pre-SOX**	**Post-SOX**	**Total**
FF1	Consumer Non-Durables	9	2	**11**
FF2	Consumer Durables	5	1	**6**
FF3	Manufacturing	20	4	**24**
FF4	Oil, Gas, and Coal Extraction and Products	3	1	**4**
FF5	Chemicals and Allied Products	5	2	**7**
FF6	Business Equipment	88	43	**131**
FF7	Telephone and Television Transmission	37	9	**46**
FF8	Utilities	-	-	**-**
FF9	Wholesale, Retail, and Some Services	5	3	**8**
FF10	Healthcare, Medical Equipment, and Drugs	14	13	**27**
FF11	Finance	-	-	**-**
FF12	Other	29	27	**56**
Total		**215**	**105**	**320**

Panel C: Country of Origin by Period

Country	1990-1993	1994-1997	1998-2001	2002-2005	2006-2009	Total
Argentina	0	0	2	0	1	**3**
Austria	0	0	1	0	0	**1**
Australia	0	3	0	0	0	**2**
Belgium	0	1	0	0	0	**1**
Brazil	0	1	0	0	0	**1**
Canada	0	8	14	3	4	**29**
Chile	1	2	0	0	0	**3**
China	0	1	5	15	40	**61**
Denmark	1	0	0	0	0	**1**
Finland	0	1	0	0	0	**1**
France	1	6	5	0	0	**11**
Germany	0	3	4	0	0	**7**
Greece	0	0	3	5	5	**13**
Hong-Kong	1	8	4	3	1	**17**
Indonesia	0	1	0	0	0	**1**
India	0	0	2	0	0	**2**
Ireland	0	2	4	0	2	**8**
Israel	3	21	17	5	8	**54**
Italy	1	3	1	1	0	**6**
Japan	0	0	1	0	0	**1**
Jordan	0	1	0	0	0	**1**
Luxemburg	1	0	1	0	0	**2**
Mexico	2	0	0	1	0	**3**
Netherlands	1	13	9	0	2	**24**
New-Zealand	1	3	0	0	0	**4**
Norway	0	0	1	0	0	**1**
Poland	0	2	0	0	0	**2**
Singapore	0	2	2	0	2	**6**
South-Africa	0	0	0	1	0	**1**
South-Korea	0	1	3	3	1	**8**
Spain	0	0	1	0	0	**1**
Sweden	0	3	0	0	0	**3**
Switzerland	0	3	4	1	0	**7**
Taiwan	0	0	1	1	1	**3**
UK	0	18	11	2	0	**31**
Total	**13**	**107**	**96**	**41**	**67**	**320**

Note: The table presents the sample selection process (Panel A), composition by industry (Panel B), and composition by country and period industry (Panel C).

Table 4.2: Selected Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Panel A: Main Analysis																								
1	***UP***																								
2	***INST***	0.04																							
3	***SOX***	-0.14	-0.37																						
4	***AUD***	-0.04	0.01	0.12																					
5	***UW***	-0.03	0.06	0.09	0.48																				
6	***HOT***	0.28	0.02	-0.04	-0.09	-0.15																			
7	***INSIDER***	0.10	-0.15	0.09	0.00	0.06	-0.04																		
8	***AGE***	-0.12	0.10	-0.16	-0.04	0.07	0.01	-0.13																	
9	***HITECH***	0.10	0.01	-0.03	0.02	0.15	0.02	0.22	-0.24																
10	***PROCEEDS***	0.01	0.10	0.00	0.40	0.59	-0.10	-0.08	0.11	0.07															
11	***ASSETS***	-0.13	0.06	0.00	0.25	0.33	-0.12	-0.02	0.38	-0.11	0.74														
12	***SALES***	-0.07	0.02	-0.04	0.09	0.20	-0.01	-0.05	0.41	-0.06	0.50	0.71													
13	***LEV***	-0.07	0.12	-0.12	0.04	-0.08	0.09	-0.05	0.10	0.00	0.15	0.12	0.11												
14	***BUBBLE***	0.32	0.07	-0.37	0.03	0.08	0.05	0.11	-0.23	0.15	0.07	-0.13	-0.10	-0.04											
	Panel B: Additional Analysis																								
15	***UP_ADJ***	1.00	0.04	-0.14	-0.04	-0.02	0.27	0.10	-0.13	0.11	0.02	-0.13	-0.08	-0.08	0.32										
16	***UP_3***	0.87	-0.02	-0.06	-0.05	-0.04	0.24	0.10	-0.07	0.07	-0.01	-0.07	-0.05	-0.06	0.24	0.87									
17	***INST_L***	0.06	0.21	-0.27	-0.15	-0.23	0.11	0.00	-0.06	0.20	-0.30	-0.32	-0.29	-0.01	0.13	0.06	-0.02								
18	***INST_EU***	-0.01	0.74	-0.40	0.04	0.00	0.01	-0.20	0.21	-0.09	0.21	0.20	0.14	0.16	0.09	-0.01	-0.09	0.18							
19	***CHINA***	-0.01	-0.43	0.62	0.05	0.08	-0.09	0.14	-0.23	-0.04	-0.03	-0.07	-0.02	-0.18	-0.19	-0.01	0.07	-0.49	-0.49						
20	***NYSE***	-0.08	-0.05	0.12	0.17	0.23	-0.09	-0.06	0.32	-0.26	0.52	0.62	0.48	0.06	-0.23	-0.08	-0.02	-0.30	0.00	0.12					
21	***AMEX***	0.04	-0.06	0.07	-0.19	-0.37	0.05	0.04	-0.01	-0.09	-0.29	-0.13	-0.07	0.03	-0.04	0.04	0.12	0.00	0.00	0.07	-0.11				
22	***NASDAQ***	0.06	0.07	-0.14	-0.10	-0.09	0.07	0.05	-0.31	0.29	-0.40	-0.56	-0.44	-0.07	0.24	0.07	-0.02	0.29	0.00	-0.14	-0.94	-0.24			
23	***PREMIUM***	0.19	-0.08	0.13	0.05	0.12	0.03	0.30	-0.33	0.19	-0.08	-0.36	-0.23	-0.10	0.06	0.20	0.11	0.09	-0.17	0.33	-0.21	-0.03	0.22		
24	***CONSRV***	-0.02	0.06	-0.02	0.02	0.07	-0.12	0.04	0.02	-0.06	0.02	-0.07	-0.05	-0.05	0.11	-0.02	-0.02	0.04	0.06	-0.02	-0.03	-0.04	0.04	0.03	
25	***UP_US***	0.36	0.16	-0.42	0.00	0.03	0.11	0.05	-0.24	0.32	0.05	-0.17	-0.09	-0.04	0.83	0.36	0.27	0.20	0.12	-0.21	-0.22	-0.07	0.24	0.03	0.10

Note: Table 4.2 presents Pearson correlation coefficients for variables used in the main analysis (Panel A) and in the additional analysis (Panel B). Correlations above 0.11 and below -0.11 are significant at the 0.05 level. See Appendix 4.A for variable definitions.

4.5 Empirical Results and Discussion

The section presents the findings of the empirical investigations described above. The results are sub-divided into the findings from the univariate analysis which is used for indicative purposes, followed by the primary regression analysis with subsequent variations and interaction terms. Thereafter, the results conclude with additional analyses aimed at strengthening the primary findings.

4.5.1 Univariate Analysis

Table 4.3 presents summary statistics for the variables used in the empirical analysis. Panel A presents summary statistics for each variable in the pooled sample. As is evident from this panel, about 32.8% of the observations are post-SOX, insiders retain about 71.5% of the shares, there are about 52.8% firm with high-tech industry membership, and 23.4% of the IPOs took place during the internet bubble period. In addition, the sample is divided into two groups: underpricing (*UP*>0) and overpricing (*UP*<0) with 210 and 75 firms respectively. Furthermore, I indicate the results of univariate tests on the difference in means (*t-test*) and medians (*Wilcoxon rank-test*). The mean of *SOX* changes from 0.290 to 0.493 (significant at 0.10 level) suggesting that more of the overpriced IPOs occur in the post-SOX era. The mean (median) of *HOT* decreases from 0.030 (0.029) to 0.006 (0.010) when comparing between underpriced and overpriced subsamples (significant at 0.05 level)[45] indicating that underpriced IPOs are more frequent in hot issue markets; when market returns are high in the month preceding the offering. The mean of *INSIDER* decreases from 0.724 to 0.693 (significant at 0.10 level) suggesting that underpriced IPOs tend to leave a larger percentage of the equity with inside investors.

Panel B presents summary statistics for each of model variables in both the pre- and post-SOX periods. I show the results of univariate tests on the difference in means (*t-test*) and medians (*Wilcoxon rank-test*). The mean (median) level of underpricing (*UP)* significantly decreases from 0.238 (0.086) in the pre-SOX

[45] For the remaining of the study, significant refers to α=0.05 unless expressly stated.

period to 0.139 (0.028) in the post-SOX period. Likewise, there are more IPOs coming from weak institutional environments after the enactment of SOX as evident from the significant decrease of the mean and median of *INST*. Also, there is a significant decline in the mean and median of *AGE* between the pre- and post-SOX periods.

Panel B also presents summary statistics for each of model variables in the strong and weak home country institutions subsamples. As before, I show the results of univariate tests on the difference in means (*t-test*) and medians (*Wilcoxon rank-test*). The mean (median) of *SOX* show significant differences between the weak and strong subsamples suggesting different allocation in issuing in the US between periods. This implies that companies from weak institutional environments are almost equally likely to list in the pre- or post- SOX periods, whilst IPOs from companies from strong institutional environments are more likely to list in the pre-SOX era. Weak is almost evenly allocated but Strong falls sharply after SOX. The mean of *INSIDER* decreases from 0.708 to 0.693 (significant at 0.10 level) suggesting that offerings in the strong institutional environment subsample leave a smaller percentage of equity for insiders. In addition, IPOs from weak institutional environments seem to be longer established and larger in size as indicated but the significant increase in mean for *AGE* and *ASSETS*, respectively. Furthermore, IPOs from companies from stronger institutional environments are significantly larger in size as demonstrated by the higher mean and median of *PROCEEDS*. The next section reports and discusses the results obtained in the pooled cross-sectional regression analysis.

Table 4.3: Univariate Analysis

Panel A: Descriptive Statistics for Full Sample and Overpricing/Underpricing Subsamples

Variable	Full Sample N=320					Underpricing (*UP*)									
						Underpricing (*UP*>0) N=210					Overpricing (*UP*<0) N=75				
	Mean	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**
Main Analysis															
UP	0.206	0.382	0.000	0.053	0.256	0.338	0.411	0.063	0.187	0.429	-0.070***	0.060	-0.094	-0.056***	-0.021
INST	0.431	0.496	0.000	0.000	1.000	0.414	0.494	0.000	0.000	1.000	0.387	0.490	0.000	0.000	1.000
SOX	0.328	0.470	0.000	0.000	1.000	0.290	0.455	0.000	0.000	1.000	0.493***	0.503	0.000	0.000***	1.000
AUD	0.872	0.335	1.000	1.000	1.000	0.871	0.336	1.000	1.000	1.000	0.893	0.311	1.000	1.000	1.000
UW	7.823	2.123	8.000	9.000	9.000	7.733	2.250	8.000	9.000	9.000	7.967	1.950	8.000	9.000	9.000
HOT	0.022	0.078	-0.025	0.020	0.065	0.030	0.082	-0.018	0.029	0.076	0.006**	0.075	-0.038	0.010**	0.049
INSIDER	0.715	0.156	0.683	0.752	0.801	0.724	0.141	0.686	0.755	0.801	0.693	0.180	0.667	0.750	0.799
AGE	2.341	0.931	1.705	2.197	2.773	2.340	0.927	1.735	2.197	2.773	2.297	0.949	1.609	2.179	2.708
HITECH	0.528	0.500	0.000	1.000	1.000	0.529	0.500	0.000	1.000	1.000	0.493	0.503	0.000	0.000	1.000
PROCEEDS	18.489	1.436	17.746	18.463	19.240	18.500	1.487	17.819	18.490	19.271	18.636	1.462	17.706	18.569	19.521
ASSETS	18.181	2.227	16.728	17.798	19.581	18.126	2.209	16.736	17.656	19.428	18.410	2.417	16.724	17.997	19.728
SALES	17.430	3.613	16.470	17.621	18.911	17.359	3.579	16.469	17.579	18.875	17.629	3.877	16.394	17.422	19.270
LEV	0.336	0.386	0.035	0.222	0.514	0.338	0.389	0.034	0.231	0.519	0.342	0.406	0.059	0.194	0.499
BUBBLE	0.234	0.424	0.000	0.000	0.000	0.243	0.430	0.000	0.000	0.000	0.227	0.421	0.000	0.000	0.000
Additional Analysis															
UP_ADJ	0.206	0.384	-0.010	0.056	0.280	0.339	0.414	0.059	0.186	0.444	-0.068***	0.068	-0.093	-0.054***	-0.025
UP_3	0.194	0.404	-0.009	0.049	0.250	0.324	0.444	0.048	0.155	0.400	-0.076***	0.079	-0.122	-0.054***	-0.013
INST_L	0.494	0.501	0.000	0.000	1.000	0.495	0.501	0.000	0.000	1.000	0.467	0.502	0.000	0.000	1.000
INST_EU	83.968	12.583	72.600	85.600	96.900	83.615	13.091	72.600	85.600	96.900	83.864	11.245	72.600	84.300	96.900
CHINA	0.188	0.391	0.000	0.000	0.000	0.190	0.394	0.000	0.000	0.000	0.200	0.403	0.000	0.000	0.000
NYSE	0.288	0.453	0.000	0.000	1.000	0.286	0.453	0.000	0.000	1.000	0.293	0.458	0.000	0.000	1.000
AMEX	0.031	0.174	0.000	0.000	0.000	0.038	0.192	0.000	0.000	0.000	0.027	0.162	0.000	0.000	0.000
NASDAQ	0.681	0.467	0.000	1.000	1.000	0.676	0.469	0.000	1.000	1.000	0.680	0.470	0.000	1.000	1.000
PREMIUM	0.921	0.054	0.900	0.932	0.950	0.921	0.060	0.909	0.934	0.952	0.927	0.039	0.900	0.929	0.948
CONSRV	-0.111	0.848	-0.299	-0.120	0.044	-0.106	0.912	-0.311	-0.130	0.049	-0.100	0.798	-0.321	-0.108	0.052
UP_US	0.247	0.193	0.103	0.196	0.319	0.261	0.201	0.107	0.210	0.372	0.201*	0.158	0.075	0.164*	0.278

Panel B: Descriptive Statistics for Post/Pre-SOX and Strong/Weak Institutional Environments

Variable	*(1) effects of SOX*										*(2) effects of home institutions (INST)*									
	Pre-SOX N=215					Post-SOX N=105					Weak N=182					Strong N=138				
	Mean	STD	Q1	Median	Q3	Mean	STD	Q1	Median	Q3	Mean	STD	Q1	Median	Q3	Mean	STD	Q1	Median	Q3
Main Analysis																				
UP	0.238	0.417	0.000	0.086	0.293	0.139**	0.289	-0.025	0.028**	0.187	0.190	0.360	0.000	0.059	0.250	0.226	0.410	0.000	0.048	0.293
INST	0.553	0.498	0.000	1.000	1.000	0.181***	0.387	0.000	0.000***	0.000	0.000	0.000	0.000	0.000	0.000	1.000***	0.000	1.000	1.000***	1.000
SOX	0.000	0.000	0.000	0.000	0.000	1.000***	0.000	1.000	1.000***	1.000	0.473	0.501	0.000	0.000	1.000	0.138***	0.346	0.000	0.000***	0.000
AUD	0.851	0.357	1.000	1.000	1.000	0.914	0.281	1.000	1.000	1.000	0.863	0.345	1.000	1.000	1.000	0.884	0.321	1.000	1.000	1.000
UW	7.760	2.147	8.000	9.000	9.000	7.952	2.077	8.000	9.000*	9.000	7.682	2.236	8.000	9.000	9.000	8.010	1.956	8.000	9.000	9.000
HOT	0.025	0.090	-0.030	0.019	0.091	0.017	0.047	-0.014	0.021	0.050	0.021	0.078	-0.025	0.020	0.067	0.023	0.080	-0.022	0.020	0.064
INSIDER	0.708	0.161	0.667	0.754	0.803	0.728	0.143	0.693	0.750	0.793	0.730	0.136	0.692	0.756	0.800	0.694**	0.177	0.645	0.743	0.803
AGE	2.451	0.984	1.768	2.234	2.944	2.115***	0.769	1.705	2.079**	2.565	2.262	0.889	1.609	2.197	2.708	2.444*	0.978	1.792	2.268	2.890
HITECH	0.544	0.499	0.000	1.000	1.000	0.495	0.502	0.000	0.000	1.000	0.516	0.501	0.000	1.000	1.000	0.543	0.500	0.000	1.000	1.000
PROCEEDS	18.502	1.528	17.617	18.372	19.418	18.461	1.232	18.069	18.507	19.082	18.349	1.453	17.630	18.324	19.008	18.673**	1.398	17.894	18.592**	19.557
ASSETS	18.149	2.470	16.526	17.548	19.782	18.247	1.629	17.194	17.989	18.928	18.001	2.118	16.683	17.668	19.163	18.418*	2.350	16.769	18.329	20.016
SALES	17.516	3.559	16.087	17.517	19.095	17.254	3.732	16.918	17.733	18.553	17.321	3.574	16.469	17.442	18.707	17.574	3.672	16.471	17.775	19.227
LEV	0.367	0.408	0.049	0.258	0.558	0.271**	0.328	0.021	0.164	0.421	0.306	0.352	0.021	0.195	0.463	0.376	0.424	0.053	0.248	0.567
BUBBLE	0.349	0.478	0.000	0.000	1.000	0.000***	0.000	0.000	0.000***	0.000	0.203	0.404	0.000	0.000	0.000	0.275	0.448	0.000	0.000	1.000
Additional Analysis																				
UP_ADJ	0.239	0.419	0.003	0.084	0.293	0.140**	0.289	-0.028	0.023**	0.192	0.191	0.359	-0.005	0.059	0.263	0.227	0.415	-0.011	0.049	0.293
UP_3	0.209	0.409	0.000	0.063	0.262	0.165	0.394	-0.029	0.023	0.216	0.196	0.426	-0.013	0.043	0.243	0.192	0.376	-0.001	0.053	0.250
INST_L	0.581	0.494	0.000	1.000	1.000	0.314***	0.466	0.000	0.000***	1.000	0.412	0.494	0.000	0.000	1.000	0.601***	0.491	0.000	1.000***	1.000
INST_EU	87.333	12.454	72.600	95.200	96.900	76.97***	9.666	71.500	71.50***	79.600	75.842	10.266	71.500	72.600	79.600	94.88***	4.625	95.200	96.90***	97.100
CHINA	0.028	0.165	0.000	0.000	0.000	0.514***	0.502	0.000	1.000***	1.000	0.330	0.471	0.000	0.000	1.000	0.000***	0.000	0.000	0.000***	0.000
NYSE	0.251	0.435	0.000	0.000	1.000	0.362**	0.483	0.000	0.000**	1.000	0.302	0.460	0.000	0.000	1.000	0.268	0.445	0.000	0.000	1.000
AMEX	0.019	0.135	0.000	0.000	0.000	0.057*	0.233	0.000	0.000*	0.000	0.038	0.193	0.000	0.000	0.000	0.022	0.146	0.000	0.000	0.000
NASDAQ	0.730	0.445	0.000	1.000	1.000	0.581***	0.496	0.000	1.000***	1.000	0.659	0.475	0.000	1.000	1.000	0.710	0.455	0.000	1.000	1.000
PREMIUM	0.927	0.054	0.906	0.934	0.958	0.911**	0.053	0.900	0.929***	0.939	0.916	0.054	0.899	0.928	0.944	0.929**	0.053	0.913	0.938***	0.956
CONSRV	-0.116	0.887	-0.321	-0.127	0.049	-0.101	0.764	-0.281	-0.095	0.041	-0.100	0.792	-0.290	-0.111	0.042	-0.126	0.919	-0.326	-0.126	0.058
UP_US	0.304	0.208	0.118	0.269	0.453	0.131***	0.073	0.066	0.117***	0.208	0.218	0.177	0.088	0.171	0.269	0.284***	0.208	0.107	0.219***	0.441

Note: Table 4.3 presents descriptive statistics for the full sample as well as for distinguishing between overpricing (*UP>0*) and underpricing (*UP<0*) as shown in Panel A. Panel B reports descriptive statistics for Pre- and Post- SOX and between strong home legal institutions (*INST* = 1) and weak home legal institutions (*INST* = 0). Panel A and B also report the results of tests for the differences in the means and medians (the latter using Wilcoxon rank-test) under the Weak Home Institutions block. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. See Appendix 4.A for variable definitions.

4.5.2 Regression Analysis

As stated in Section 4.3, a limitation of Model 4.1 is that it uses only indicators for *INST* and *SOX* and therefore assumes that all coefficients apart from *INST* are the same for foreign IPOs from both weak and strong legal environments. This may not be true if these IPOs are affected differently by some of the factors as the univariate analysis in subsection 4.1 suggests. Table 4.4 presents the results for estimating Model 4.1 separately for the two strong and weak institutions subsamples and reports the differences in the coefficients using interactions of *INST* with all of the variables (denoted as Model 4.1.a with the full model specifications presented in the notes of Table 4.4).

Table 4.4 is separated into three columns; the first two columns on left hand side show the results for Model 4.1 (excluding the *INST* variable) estimated for subsamples from strong and weak institutional environments respectively. The third column to the left reports the coefficients for the interactions terms from model 1.a. Thus, the reported coefficients are the differences between the coefficients observed in the strong and weak subsamples, except for *INST* which is the difference between the intercepts of the strong and weak home institutions regressions. The *INST* coefficient for the difference between the subsample is negative and significant. This indicates lower underpricing on average in IPOs from companies with stronger home country institutions. *HOT* is positive and significant for the two subsamples with no evidence of a significant difference. This is in line with Loughran and Ritter (2002) who argue that the positive relation between underpricing and higher market return in the month preceding the IPO is due to an increase in the anticipated wealth by the issuers that lowers their incentives to bargain hard for an offer price increase which should be relatively unaffected by the country of origin of the listing company. The age of the company (*AGE*) has the opposite effect on underpricing between the two groups. There is evidence for a higher underpricing for more mature firms from strong legal environments and a negative relation between *AGE* and underpricing for the IPOs coming from weaker environment. Also, the difference is positive

and significant suggesting different motivations for underpricing for the two types of firms; i.e. younger firms have more information asymmetry and so tend to underprice the IPO more to compensate investors for the risk (Johnson and Madura, 2009; Daily et al., 2005), while mature firms from countries with strong legal institutions underpricing may desire the higher press visibility that comes from first-day returns or simply have more money to leave on the table (Loughran and Ritter, 2002).

Findings from the examination of firm specific control variables show that the positive association between offer's size (*PROCEEDS*) and the level of underpricing (*UP*) as well as the negative relation between firm size (*ASSETS*) and sales to the level of underpricing are likely to be phenomena of IPOs from strong institutional backgrounds. No statistically significant effects are observed for IPOs coming from weak institutions. In the case of *SALES*, findings show opposite effects on both subgroups with positive (negative) association for firms coming from strong (weak) institutional environments (significant at 0.10 level). Negative relation between sales and underpricing is a well-documented phenomenon in IPOs (Brennan and Franks, 1997) and the difference between the two groups of firms suggests that investors consider firms that are coming from countries with strong legal institutions closer to domestic US firms relative to IPOs from environments with weak legal institutions. Leverage and association with the high-tech industry are significant for strong legal institution firms but do not show a significant difference between the two subsamples. Also, *BUBBLE* is significantly positive and different between the two subgroups.

Table 4.4: Underpricing Analyzed between Strong and Weak Legal Institutions Countries

	Underpricing (*UP*)		
	Strong	**Weak**	**Difference**
INTERCEPT	**-1.416*** **	-0.143	
	(0.001)	(0.805)	
INST			**-1.273** **
			(0.024)
SOX	-0.065	-0.047	-0.018
	(0.308)	(0.190)	(0.826)
AUD	0.033	-0.059	0.091
	(0.681)	(0.388)	(0.358)
UW	-0.031	-0.021	-0.010
	(0.262)	(0.128)	(0.786)
HOT	**1.685*** **	**1.135*** **	0.549
	(0.010)	**(0.000)**	(0.231)
INSIDER	0.138	**0.683** **	-0.546
	(0.595)	**(0.047)**	(0.169)
AGE	**0.076** **	**-0.079** **	**0.155*** **
	(0.024)	**(0.032)**	**(0.004)**
HITECH	**0.059***	-0.009	0.068
	(0.092)	(0.896)	(0.408)
PROCEEDS	**0.153*** **	0.017	**0.136*** **
	(0.000)	(0.611)	**(0.002)**
ASSETS	**-0.051*** **	-0.014	**-0.037***
	(0.000)	(0.343)	**(0.094)**
SALES	**-0.023***	**0.010***	**-0.033** **
	(0.072)	**(0.081)**	**(0.021)**
LEV	**-0.175*** **	-0.060	-0.115
	(0.002)	(0.163)	(0.163)
BUBBLE	**0.255*** **	0.112	**0.142** **
	(0.000)	(0.125)	**(0.044)**
N	138	182	320
Adj R^2	0.233	0.189	0.211

Notes:

1. Table 4.4 presents results of the regression model of underpricing (*UP*) separately for the strong home institutions subsample (the Strong column) and the weak home institutions subsample (the Weak column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report p-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 4.A for variable definitions.

2. The regression model encompasses model 4.1 and extends it to allow for interactions with *INST* is:

$$UP_i = \alpha + \beta_1 INST_i + \beta_2 SOX_i + \beta_3 AUD_i + \beta_4 UW_i + \beta_5 HOT_i + \beta_6 INSIDER_i + \beta_7 AGE_i + \beta_8 HITECH_i + \beta_9 SIZE_i + \beta_{10} ASSETS_i + \beta_{11} SALES_i + \beta_{12} LEV_i + \beta_{13} BUBBLE_i + \gamma_1 INST * SOX_i + \gamma_2 INST * AUD_i + \gamma_3 INST * UW_i + \gamma_4 INST * HOT_i + \gamma_5 INST * INSIDER_i + \gamma_6 INST * AGE_i + \gamma_7 INST * HITECH_i + \gamma_8 INST * SIZE_i + \gamma_9 INST * ASSETS_i + \gamma_{10} INST * SALES_i + \gamma_{11} INST * LEV_i + \gamma_{12} INST * BUBBLE_i + \varepsilon_i \quad (4.1.a)$$

The "Difference" column reports the value of the of the γ_i, $i=\{1,2,\ldots,12\}$ coefficients, their p-values as well as the adjusted R^2 for this regression.

In Table 4.5 I repeat the analysis in Model 4.1 separately for the pre- and post-SOX subsamples and report the differences in the coefficients using interactions of *SOX* with all of the variables (denoted as Model 4.1.b with the full model specifications presented in the notes of Table 4.5). As with Table 4.4, Table 4.5 is separated into three columns; the first two left hand-side columns show the results for Model 4.1 (excluding *SOX* variable) for the pre-SOX and post-SOX subsamples respectively while the third column to the left reports the coefficients for the interaction terms in model 1.b. Thus, the reported coefficients are the difference between the coefficients observed in the two periods' subsamples except for *SOX* which is the difference between the intercepts. The *SOX* coefficient is positive but insignificant. This indicates that there is no statistically significant difference in the level of underpricing as a result of the enactment of SOX. This evidence rejects the hypothesis that there has been a reduction in underpricing resulting from the assumed better information environment post SOX. When looking at the univariate results with relation to SOX, the clear difference in the level of underpricing *(UP*) between the two periods becomes insignificant in the multivariate analysis due to the difference in explanatory variables between the two periods. Consistent with Johnson and Madura (2009), reputable auditors are constraining underpricing more in the post-SOX period with a significantly negative coefficient on difference. Also, the relation between *HOT* and *UP* is significantly lower though still positive in the post-SOX period. *INSIDER* and *AGE* have positive and negative effects respectively only in the post-SOX period, whilst *HITECH*, *PROCEEDS*, *ASSETS* and *LEV* are only statistically significant variables in the pre-SOX period. Finally, the dot-com bubble (*BUBBLE*) is a statistically significant factor in the level of underpricing in the pre-SOX era.

The overall findings for underpricing in IPOs are mixed in relation to the hypothesizes postulated in this paper. IPOs of companies that come from home countries with strong institutional environments at their home country experience lower underpricing on average than those which come from a countries with weaker institutional environments. However, these findings do not support the hypothesis that there has been a change in the level of underpricing as a result of

an improvement in the informational environment following SOX. First, both the strong and weak home institution subgroups do not show a statistically significant change in levels of underpricing as a result of SOX. Second, when splitting the sample to pre- and post- SOX periods, there is no significant difference in the magnitude of intercepts. The next subsection presents additional analyses and sensitivity tests to further strengthen the findings.

Table 4.5: Underpricing Analyzed between Post-SOX and Pre-SOX periods

	Underpricing (*UP*)		
	Post-SOX	**Pre-SOX**	**Difference**
INTERCEPT	0.527	-0.750	
	(0.378)	(0.170)	
SOX			1.276
			(0.108)
INST	0.017	0.038	-0.021
	(0.803)	(0.307)	(0.786)
AUD	**-0.318***	0.059	**-0.377****
	(0.064)	(0.437)	**(0.037)**
UW	-0.029	-0.013	-0.016
	(0.165)	(0.244)	(0.540)
HOT	**0.632****	**1.416*****	**-0.784***
	(0.049)	**(0.005)**	**(0.067)**
INSIDER	**0.490*****	0.195	0.296
	(0.002)	(0.437)	(0.289)
AGE	**-0.042****	0.001	-0.043
	(0.048)	(0.969)	(0.237)
HITECH	0.002	**0.053****	-0.051
	(0.978)	**(0.040)**	(0.554)
PROCEEDS	0.004	**0.083****	-0.078
	(0.935)	**(0.038)**	(0.189)
ASSETS	-0.005	**-0.041*****	0.036
	(0.810)	**(0.001)**	(0.134)
SALES	-0.007	0.001	-0.007
	(0.372)	(0.926)	(0.469)
LEV	-0.096	**-0.131*****	0.035
	(0.198)	**(0.000)**	(0.676)
BUBBLE		**0.181*****	
		(0.000)	
N	105	215	320
Adj R^2	0.248	0.197	0.210

Notes:

1. The table presents results of the regression model of underpricing (*UP*) separately for the pre-SOX subsample (the Pre-SOX column) and the post-SOX subsample (the Post-SOX column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report p-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 4.A for variable definitions.

2. The model encompasses Model 4.1 and extends it to allow for interactions with SOX:

$$UP_i = \alpha + \beta_1 SOX_i + \beta_2 INST_i + \beta_3 AUD_i + \beta_4 UW_i + \beta_5 HOT_i + \beta_6 INSIDER_i + \beta_7 AGE_i + \beta_8 HITECH_i + \beta_9 SIZE_i + \beta_{10} ASSETS_i + \beta_{11} SALES_i + \beta_{12} LEV_i + \beta_{13} BUBBLE_i + \gamma_1 SOX_i * INST + \gamma_2 SOX_i * AUD_i + \gamma_3 SOX_i * UW_i + \gamma_4 SOX_i * HOT_i + \gamma_5 SOX_i * INSIDER_i + \gamma_6 SOX_i * AGE_i + \gamma_7 SOX_i * HITECH_i + \gamma_8 SOX_i * SIZE_i + \gamma_9 SOX_i * ASSETS_i + \gamma_{10} SOX_i * SALES_i + \gamma_{11} SOX_i * LEV_i + \gamma_{12} SOX_i * BUBBLE_i + \varepsilon_i \quad (4.1.b)$$

The "Difference" column reports the value of the of the γ_i, $i=\{1,2,\ldots,12\}$ coefficients, their p-values as well as the adjusted R^2 for this regression.

4.6 Additional Analysis

In order to augment my primary findings, additional analysis of the data has been carried out as discussed below.

4.6.1 Investors' Premium

In addition to using the level of underpricing, the literature on IPOs suggests using investors' premium as an alternative measure of initial performance (for example, Certo et al., 2003; Welbourne and Andrews, 1996; Aerts and Cheng, 2012; Lester et al., 2006). This captures the excess value that investors place on firm's net assets. The investors' premium is most commonly calculated as the IPO offer price per share minus the book value of equity per share after the offering, as a portion of the offer price, or:

Investors' Premium (PREMIUM) = (offer price – book value per share)/offer value

(4.2)

Welbourne and Andrews (1996) argue that the advantage of using this measure as opposed to measures that rely on stock price (as is the case with underpricing), is that it only takes into account the value of the stock price that is above the book value of the firm. They also claim that the investor's premium measure represents a more robust estimate to the perceived value of the firm as compared to underpricing alone. The summary statistics of this alternative performance measure are presented in Panel B of Table 4.2. To test the relation between investors' premium and explanatory variables in question, I perform the same analysis as described above and presented in Table 4.4 but with *PREMIUM* replacing *UP* as the dependent variable in the pooled regression. The coefficients of the regressors for each subsample (separately) and the interaction terms of the regressors with *INST* in Model 4.2.a are presented in the motes of Table 4.6.

The positive and significant coefficient of *INST* in the interactions regression indicates that IPOs of companies from home countries with strong institutions are more highly valued by investors. These findings are persistent

despite controlling for other factors. Results also show a significant negative relation between *PREMIUM* and *SOX* for IPOs of companies coming from both weak and strong institutional environments. Furthermore, findings show that both subsamples experience higher investors' valuation when the IPO's underwriter is of higher prestige, as found in (Aggrawal et al., 2009), with no significant differences between the two. The control variables *PROCEEDS* and *LEV* are significantly positive and lower in IPOs coming from countries with weak institutions in comparison with IPOs from strong ones. These results suggest that visibility (as expressed by the offer size) and the indication of quality by the leverage provider are read positively by investors in IPOs of companies from weak institutional backgrounds. Firm size (*ASSETS*) is negatively associated with *PREMIUM* in the weak subsample with a positive and significant coefficient of the difference. Hence, larger firms from companies from weak institutions enjoy a smaller premium relative to firms from countries with stronger institutions.

In Panel B of Table 4.6 I repeat the analysis in Panel A of Table 4.6 separately again for the pre- and post-SOX two subsamples and report the differences in the coefficients using interactions of *SOX* with all of the vector variables (denoted as Model 4.2.b with the full model specifications presented in the notes of Table 4.6). Results show a statistically significant decrease in investors' premium in the post-SOX period. However, there is no significant effect of SOX in relation to the institutional environments at the country of origin and investors' premium. *AUD* is positive in the post-SOX period (significant at 0.10 level) with a significant and positive coefficient of the difference between the two periods. Thus, in line with increased auditor's enhanced liability after the introduction of SOX, investors' valuation is positively associated with auditors' prestige in the post-SOX period. *UW* however, is only significant and positive in the pre-SOX period when liabilities of auditors and management were relatively smaller. This contributes to literature which suggests that underwriters with a higher reputation certify the quality of offering to potential investors (for example, Helou and Park, 2001), or alternatively reduce the offer price which in turn increases the premium (Ritter, 2011). *AGE*, *PROCEEDS*, *ASSETS* and *LEV* all

report differences in the magnitude of association with *PREMIUM* in both periods as expressed by the statistically significant coefficients of differences.

Finally, I conduct these tests using first day closing price instead of offer price to control for potential underpricing (Aerts and Cheng, 2012). The results from this analysis are not materially different from those described above and therefore have not been reported.

Table 4.6: Testing for Investors' Premium

Panel A: Underpricing Analyzed between Strong and Weak Legal Institutions Countries

	Investors' premium (*PREMIUM*)		
	Strong	**Weak**	**Difference**
INTERCEPT	**0.708*** **	**0.555*** **	
	(0.000)	**(0.000)**	
INST			**0.152** **
			(0.033)
SOX	**-0.018** **	**-0.015*** **	-0.004
	(0.014)	**(0.002)**	(0.682)
AUD	0.002	0.015	-0.013
	(0.845)	(0.261)	(0.527)
UW	**0.007** **	**0.006*** **	0.001
	(0.011)	**(0.006)**	(0.740)
HOT	0.006	-0.016	0.022
	(0.942)	(0.643)	(0.754)
INSIDER	0.008	-0.026	0.033
	(0.596)	(0.514)	(0.448)
AGE	-0.005	0.002	-0.007
	(0.187)	(0.738)	(0.354)
HITECH	-0.011	-0.002	-0.009
	(0.152)	(0.649)	(0.312)
PROCEEDS	0.011	**0.022*** **	**-0.012** **
	(0.144)	**(0.001)**	**(0.013)**
ASSETS	-0.000	**-0.006** **	**0.005***
	(0.900)	**(0.039)**	**(0.058)**
SALES	0.000	0.001	-0.000
	(0.786)	(0.637)	(0.885)
LEV	-0.025	**0.014** **	**-0.040** **
	(0.139)	**(0.044)**	**(0.024)**
BUBBLE	**-0.020** **	0.000	**-0.020***
	(0.029)	(0.992)	**(0.057)**
N	135	177	312
Adj R^2	0.183	0.517	0.384

Panel B: Underpricing Analyzed between Post-SOX and Pre-SOX periods

	Investors' premium (*PREMIUM*)		
	Post-SOX	**Pre-SOX**	**Difference**
INTERCEPT	**0.395*** **	**0.669*** **	
	(0.003)	**(0.000)**	
SOX			**-0.274***
			(0.062)
INST	0.004	0.002	0.001
	(0.237)	(0.722)	(0.815)
AUD	**0.037***	0.004	**0.033***
	(0.082)	(0.686)	**(0.098)**
UW	0.001	**0.006*** **	-0.005
	(0.618)	**(0.009)**	(0.234)
HOT	-0.013	0.004	-0.017
	(0.779)	(0.949)	(0.792)
INSIDER	-0.031	0.003	-0.034
	(0.330)	(0.874)	(0.462)
AGE	**0.010*** **	-0.004	**0.015*** **
	(0.001)	(0.153)	**(0.004)**
HITECH	-0.002	-0.009*	0.007
	(0.553)	(0.089)	(0.157)
PROCEEDS	**0.034*** **	**0.012** **	**0.022** **
	(0.003)	**(0.030)**	**(0.049)**
ASSETS	**-0.009** **	0.000	**-0.009** **
	(0.019)	(0.945)	**(0.022)**
SALES	0.001	-0.000	0.001
	(0.207)	(0.698)	(0.250)
LEV	0.009*	-0.014	**0.022***
	(0.072)	(0.232)	**(0.080)**
BUBBLE		**-0.011***	
		(0.074)	
N	104	208	312
Adj R^2	0.518	0.225	0.391

Notes:

1. Panel A of Table 4.7 presents results of the regression model of investors' premium (*PREMIUM*) separately for the strong home institutions subsample (the Strong column) and the weak home institutions subsample (the Weak column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report p-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 4.A for variable definitions.

2. The regression model encompasses Model 4.1 and extends it to allow for interactions with *INST* is:

$$PREMIUM_i = \alpha + \beta_1 INST_i + \beta_2 SOX_i + \beta_3 AUD_i + \beta_4 UW_i + \beta_5 HOT_i + \beta_6 INSIDER_i + \beta_7 AGE_i + \beta_8 HITECH_i + \beta_9 SIZE_i + \beta_{10} ASSETS_i + \beta_{11} SALES_i + \beta_{12} LEV_i + \beta_{13} BUBBLE_i + \gamma_1 INST * SOX_i + \gamma_2 INST * AUD_i + \gamma_3 INST * UW_i + \gamma_4 INST * HOT_i + \gamma_5 INST * INSIDER_i + \gamma_6 INST * AGE_i + \gamma_7 INST * HITECH_i + \gamma_8 INST * SIZE_i + \gamma_9 INST * ASSETS_i + \gamma_{10} INST * SALES_i + \gamma_{11} INST * LEV_i + \gamma_{12} INST * BUBBLE_i + \varepsilon_i \quad (4$$

The "Difference" column reports the value of the of the γ_i, $i=\{1,2,\ldots,12\}$ coefficients, their p-values as well as the adjusted R^2 for this regression.

3. Panel B of Table 4.7 presents results of the regression model of investors' premium (*PREMIUM*) separately for the pre-SOX subsample (the Pre-SOX column) and the post-SOX subsample (the Post-SOX column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report p-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 4.A for variable definitions.

4. The model encompasses Model 4.1 and extends it to allow for interactions with SOX:

$$\begin{aligned} PREMIUM_i = {} & \alpha + \beta_1 SOX_i + \beta_2 INST_i + \beta_3 AUD_i + \beta_4 UW_i + \beta_5 HOT_i + \beta_6 INSIDER_i + \beta_7 AGE_i + \beta_8 HITECH_i + \beta_9 SIZE_i + \\ & \beta_{10} ASSETS_i + \beta_{11} SALES_i + \beta_{12} LEV_i + \beta_{13} BUBBLE_i + \gamma_1 SOX_i * INST + \gamma_2 SOX_i * AUD_i + \gamma_3 SOX_i * UW_i + \\ & \gamma_4 SOX_i * HOT_i + \gamma_5 SOX_i * INSIDER_i + \gamma_6 SOX_i * AGE_i + \gamma_7 SOX_i * HITECH_i + \gamma_8 SOX_i * SIZE_i + \\ & \gamma_9 SOX_i * ASSETS_i + \gamma_{10} SOX_i * SALES_i + \gamma_{11} SOX_i * LEV_i + \gamma_{12} SOX_i * BUBBLE_i + \varepsilon_i \end{aligned} \quad (4.2.b)$$

The "Difference" column reports the value of the of the γ_i, $i=\{1,2,\ldots,12\}$ coefficients, their p-values as well as the adjusted R^2 for this regression.

4.6.2 Accounting conservatism and underpricing

In a recent study, Lin and Tian (2012) investigate the relation between accounting conservatism and IPO underpricing. They argue that since information asymmetry theories are regarded as central to explaining underpricing, the recognition criteria of firm's financial reporting should matter. More specifically, they find a negative relation between accounting conservatism and underpricing levels which increases with the degree of information asymmetry. In the formation of the theoretical framework for a relationship between underpricing and conservatism is primarily based on Basu (1997) and Bushman and Piotroski (2006). They argue that accounting conservatism implies asymmetry in gains and losses recognition where the latter require less verification and thus constrain managers from following opportunistic objectives by overstating earnings and understating losses. As a result, under conservative accounting information asymmetry between issuers and other stakeholders of IPO firms is expected to be relatively lower and this should result in lower levels of IPO underpricing (Lin and Tian, 2012).

I test for the potential effect of accounting conservatism on the level of underpricing with respect to the country of the origin of the foreign IPOs by

introducing the variable *CONSRV* into the main tests. Following Lin and Tian (2012), I use the total accrual-base measure of conservatism which is based on Givoly and Hayn (2000) and is calculated as follows:

$$CONSRV_{i,t} = (-1) * (NI_{i,t} + DEP_{i,t} - CFO_{i,t}) / TA_{i,t-1}$$

where conservatism (*CONSRV*) is defined as the firm's net income before extraordinary items (*NI*) plus depreciation and amortization (*DEP*) minus operating cash flows (*CFO*) (all at the end of the fiscal year preceding the IPO date and multiplied by minus one), divided by the lagged total assets of the firm (TA_{t-1}).

The univariate analysis presented in Panel B of Table 4.3 show no statistical significant differences in means and medians between the pre- and post-SOX or the weak and strong legal institutions subsamples. This contradicts to other studies that find an increase in the accrual-base measure of conservatism in the post-SOX period (Lobo and Zhou, 2006; Cohen et al., 2008). This may be attributable to other factors in the IPOs going to the US, and therefore should be analyzed by allowing for these factors in a multivariate framework.

The relation between underpricing and accounting conservatism is tested after allowing for the factors in question presented in Panel A of Table 4.7. I run Model 4.1 (with *UP* being the dependent variable) with the inclusion of *CONSRV* (denoted as Model 4.3.a). The full model specification is presented in the notes of Table 4.7. I report the differences in the coefficients, using the following methods; (a) interactions of *INST* with all of the variables, and (b) interactions of *SOX* with all the variables. The results regarding the differences between IPOs coming from weak and strong legal institution countries remain statistically significant and negative, indicating lower underpricing in IPOs of companies coming from country of origin with strong legal institutions. There are also no statistically significant differences in underpricing between the pre- and post- SOX periods. In relation to conservatism, results show a negative and significant relation between conservatism and underpricing for IPOs coming from countries with strong legal

institutions with marginal significance on the difference between the weak and the strong subsamples.

In Panel B of Table 4.7, I repeat the analysis of Model 4.1 again with *PREMIUM* replacing *UP* as a dependent variable for the two subsamples separately (denoted as Model 4.3.b with the full model specification presented in the notes of Table 4.7). As in the case of underpricing, results show a negative relation between investors' premium and conservatism levels. These results indicate that investors price firms from strong institution countries that report more conservatively lower than those that are relatively less conservative in their reporting. This effect is even stronger after SOX.

Table 4.7: The Association between Accounting Conservatism (*CONSRV*) and Underpricing (*UP*) and Investors' Premium (*PREMIUM*)

Panel A: Underpricing Analyzed between Strong and Weak Legal Institutions Countries and between Post-SOX and Pre-SOX periods

	Underpricing (*UP*)					
	INST			***SOX***		
	Strong	**Weak**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**
INTERCEPT	**-1.565****	-0.289		0.128	-0.865	
	(0.012)	(0.651)		(0.802)	(0.225)	
INST			**-1.276****	0.011	**-0.002****	0.013
			(0.015)	(0.294)	**(0.041)**	(0.189)
SOX	-0.087	**-0.071***	-0.016			0.993
	(0.201)	**(0.090)**	(0.850)			(0.335)
CONSERV	**-0.003****	0.002	-0.005	-0.017	0.026	-0.043
	(0.026)	(0.411)	(0.107)	(0.855)	(0.529)	(0.666)
Controls	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
N	133	174	307	98	209	307
Adj R^2	0.222	0.186	0.203	0.176	0.184	0.187

Panel B: Investors' Premium Analyzed between Strong and Weak Legal Institutions Countries and between Post-SOX and Pre-SOX periods

	Investors' premium (*PREMIUM*)					
	INST			***SOX***		
	Strong	**Weak**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**
INTERCEPT	**0.680*****	**0.558*****		**0.409*****	**0.643*****	
	(0.000)	**(0.000)**		**(0.000)**	**(0.000)**	
INST			0.122	0.003	0.001	0.002
			(0.108)	(0.471)	(0.827)	(0.797)
SOX	-0.015	**-0.015*****	-0.001			**-0.234*****
	(0.110)	**(0.007)**	(0.935)			**(0.009)**
CONSRV	**-0.000****	0.001	**-0.001***	**-0.003****	-0.000	**-0.002****
	(0.020)	(0.117)	**(0.067)**	**(0.023)**	(0.313)	**(0.024)**
Controls	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
N	130	170	300	97	203	300
Adj R^2	0.162	0.474	0.342	0.540	0.230	0.336

Notes:

1. The table presents results for estimating equations 4.3.a and 4.3.b in Panel A and Panel B, respectively. The 'Difference' columns report the difference between the two subsample coefficients using the interactions with the INST and SOX variables. The dependent variables are UP and PREMIUM, as explained in Table 4.4 and Table

4.5.

2. Additional coefficients β_i, i={4,5,…,14} identified in the table as Controls are not tabulated for parsimonious reasons.
3. The regressions models are:

$$UP_i = \alpha + \beta_1 INST_i + \beta_2 SOX_i + \beta_3 CONSRV_i + \beta_4 AUD_i + \beta_5 UW_i + \beta_6 HOT_i + \beta_7 INSIDER_i + \beta_8 AGE_i + \beta_9 HITECH_i + \beta_{10} SIZE_i + \beta_{11} ASSETS_i + \beta_{12} SALES_i + \beta_{13} LEV_i + \beta_{14} BUBBLE_i + \varepsilon_i \quad (4.3.a)$$

$$PREMIUM_i = \alpha + \beta_1 INST_i + \beta_2 SOX_i + \beta_3 CONSRV_i + \beta_4 AUD_i + \beta_5 UW_i + \beta_6 HOT_i + \beta_7 INSIDER_i + \beta_8 AGE_i + \beta_9 HITECH_i + \beta_{10} SIZE_i + \beta_{11} ASSETS_i + \beta_{12} SALES_i + \beta_{13} LEV_i + \beta_{14} BUBBLE_i + \varepsilon_i \quad (4.3.b)$$

4. I report p-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 4.A for variable definitions.

4.6.3 Underpricing adjusted to market performance

Since first day performance may be sensitive to market performance on the same day, I use the methodology from Carter et al. (1998) to compute the market-adjusted initial returns (*UP_ADJ*) and repeat the analysis above. See Panel B of Table 4.2 for summary statistics. This procedure results in no material changes in the estimated coefficients and therefore is not reported in the paper.

4.6.4 Three days aftermarket return

Schultz and Zaman (1994) find that the first days of trading of an IPO can be influenced by the underwriters and their aim to maximize their income from the offering. As such, it is likely that the first day return do not fully reflect the dynamics of the pricing mechanism of the market. To pre-empt this potential shortcoming, I redefine underpricing as the aftermarket return at the end of the first three trading days (*UP_3*) and repeat the analysis above. See Panel B of Table 4.2 for summary statistics. Similar to adjusting for market performance, this procedure results in no material changes in the estimated coefficients and therefore is not reported in the paper.

4.6.5 Alternative Indices for Institutional Environment

To test the sensitivity of the returns to the definition of the ranking of the home country institutional environment, I redefine the *INST* variable according to two different indices proposed by Leuz (2010) and Bruner at al. (2004). Leuz (2010) divides a list of 49 countries into three clusters according to their regulatory and institutional differences. For the purpose of this paper when defining the variable *INST_L*, I identify Cluster 1 as Strong (*INST_L*=1) and Clusters 2 and 3 are combined to reflect weak institutional environments (*INST_L*=0). Finally, though China is not present in Leuz (2010), I categorize IPOs coming from China as part of the weak home institutions subgroup in line

with Allen et al., (2005) that find that neither the legal nor the financial system in China is well developed.

Alternatively, Bruner at al. (2004) uses the Country Risk Rating index as published in Euromoney's annual surveys to score the home institutions of firms listing in the US. They assign a country's score based on the year of the first IPO from each country. I use Bruner at al. (2004) scoring to calculate the *INST_EU* variable when a country with a score of below or equal to (above) the median is identified as having a weak (strong) institutional environment.

However, using the above mentioned alternative indices to redefine results in no material changes in the estimated coefficients and therefore are not reported in the paper. Furthermore, it is important to note that these indices do not exhibit temporal variations and thus do not reflect changes in regulatory and institutional environments at the country of origin. The relevance of this limitation is that it increases in time and with the sample size.

4.6.6 Domestic US IPOs

To control for the general underpricing levels of domestic US IPOs, I introduce the variable *UP_US* and repeat the analysis. The variable is calculated by matching the average the first day underpricing of all US domestic IPOs in the same industry and same year to each of the foreign IPOs in the sample. See Panel B of Table 4.2 for summary statistics. Results of the main tests do not change in any material way with the inclusion of *UP_US* and are therefore not reported in this paper. However, it is important to note that the underpricing of domestic IPOs in the US positively affects the underpricing of foreign IPOs from weak institutional environments and (to a lesser extent) the IPOs from environments with strong legal institutions. The coefficient of the difference is negative and significant. This is evidence to suggest once again that firms from weak institutional environments in their country of origin leave more money on the table also compared to domestic US IPOs.

4.6.7 China indicator

IPOs coming from China became dominant in the years following the enactment of SOX and constitute 50.9% of the post-SOX sample. Moreover, previous studies also document high levels of underpricing of IPOs in China (Mok and Hui, 1998; Kimbro, 2005; and Ritter, 2011). To control for specific potential effects originating from Chinese IPOs I included a China indicator to Model 4.1 which equals 1 when an IPO is coming from China and 0 otherwise. Once again, this procedure results in no material changes in the estimated coefficients and therefore is not reported in the paper.

4.6.8 Exchange membership

To test for potential stock exchange membership effects, I rerun Model 4.1 with the inclusion of three new indicator variables: *NYSE*, *NASDAQ* and *AMEX* which each gets the value 1 if the US market of issuing is New York Stock Exchange, NASDAQ or the American Stock Exchange respectively, and otherwise are set to 0. This procedure results in no material changes in the estimated coefficients and therefore the results are not reported in the paper.

4.7 Conclusion

This paper investigates some unresolved questions regarding the impact of institutional changes on information asymmetry in foreign IPOs in the US. Using a unique dataset of foreign IPOs in US capital markets in the years 1990-2009, I investigate whether the negative association between underpricing (as a proxy for the adverse selection problem) and the legal environment of the country of origin have weakened following the enactment of Sarbanes-Oxley Act of 2002 in the special case of foreign firms listing in the US. I further investigate whether the structural changes introduced by SOX have had a different impact on foreign firms coming from weak and strong institutional environments.

This is an important focus since the Act introduced higher costs for listed firms in the form of new reporting requirements, corporate governance and

accounting mechanisms, and information disclosure requirements. All were created with the aim of increasing investors' confidence and eventually decreasing costs of capital for listed companies (Coates, 2007). Although strongly debated and subsequently contested, these changes were imposed on both domestic and foreign firms listed on US capital markets.

To date, much of the academic debate regarding the Act has focused on whether it has proven to be effective in reducing the costs of capital and its effects of the competitiveness position of US capital markets. However, to my knowledge, no study has investigated the specific effects of SOX on foreign issuers in terms of asymmetric information problems in the initial offering stage originating from the firm's specific home country institutional environment and the effects of the latter on the first day market performance.

I focus on the level of underpricing of an IPO as a proxy for the level of adverse selection between management, investors and other stakeholders of the IPO firms (Lin and Tian, 2013). Theory predicts that, if SOX has been effective in reducing information asymmetry, a reduction in underpricing levels should be evident for IPOs in the period following the Act's enactment (Kaserer et al., 2008 and 2011). Also, when focusing on institutional environment of the home country for foreign IPOs, there should be no differences in reaction to SOX between those coming from countries with strong or weak institutions. I also test for the differences in the role of corporate governance mechanisms in IPOs coming from different institutional environments and for a potential change in this role as a result of the enactment of SOX.

The empirical findings are only partly consistent with these theoretical predictions. First, IPOs of companies coming from a strong institutional environment are less underpriced. However, there is no statistically significant evidence for a change in underpricing in the post- SOX period. In addition, consistent with prior studies suggesting that voluntary governance tools can be used as a substitution for to regulations (Bruno and Claessens, 2010), I find some evidence that IPOs with prestigious underwriters underprice less. Furthermore, my findings show that a public offering with a prestigious auditor is underpriced less in the post-SOX period. I also find that accounting conservatism is negatively

associated with underpricing in the case of firms coming from countries with strong institutions. In addition, I use an alternative measure of initial performance which is commonly used in the literature and one that captures the premium that investors' assign to firm value above the net book value. My findings show that IPOs from countries with strong legal institutions benefit from a higher initial premium from investors. This premium is negatively related to their level of accounting conservatism. I show a decrease in premium in the post-SOX period. Collectively, the results of this study stress the difference between the two sets of groups, namely strong and weak home institutions but are unable to provide conclusive evidence towards the effectiveness of SOX, especially in achieving its primary objective of reducing the cost of capital in foreign IPOs.

Nevertheless, a number of limitations apply to my research design. First, there is no control for a self-selection bias. Thus, SOX could change the nature of foreign firms coming to the US. This could have an impact on the findings. Second, although it is widely used, underpricing may not be a clear proxy for adverse selection problems as there may be other motivations behind underpricing such as increasing investors awareness of the firm by media coverage and protection from legal considerations. Why I have addressed these issues to the best of my ability in this thesis, their challenges call for some considerations in future research.

Appendix 4. A: Variable Definitions

Variable	Definition	Source
Panel A: Variables Used in Main Analysis		
UP	The percentage difference between the offer price and closing stock price at the first day of trading	IPO prospectus and CRSP database
INST	An indicator variable that is set equal to 1 if the product of law enforcement index (the International Country Risk Guide – ICRG – Law and Order index) and the revised anti-director index of La Porta et al. (1998) for the home country is above the sample median, 0 otherwise	ICRG website and Spamann (2010)
SOX	An indicator variable that is set equal to 1 if the foreign registrant issues shares in the post-SOX period (2002 onwards).	
AUD	An indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990-1997, 1998-2001 and 2002 onwards, respectively; 0 otherwise	IPO Prospectus
UW	Underwriters Rank obtained from Jay Ritter's website on 06/05/2011	IPO Prospectus and Jay Ritter's website
HOT	A variable that captures the lagged return on the NASDAQ Composite index in the 30 trading days prior to listing	Bloomberg
INSIDER	The percentage of shares retained in the firm after the offering to total shares outstanding after the offering	IPO Prospectus
AGE	First I calculate Year of IPO minus founding year. Then I take the natural logarithm of (1+Age)	IPO Prospectus
HITECH	An indicator variable that is set equal to 1 if the firm operates in a high-tech industry and 0 otherwise, as defined in Tech America Foundation[46]	SDC Platinum and CRSP
PROCEEDS	Natural logarithm of offer proceeds. The variable is indexed to 2005 value of US dollars	IPO Prospectus
ASSETS	Natural logarithm of assets at the end of the fiscal year preceding the issuing. The variable is indexed to 2005 value of US dollars	IPO Prospectus
SALES	Natural logarithm of sales at the end of fiscal year preceding the IPO. The variable is indexed to 2005 value of US dollars	IPO Prospectus
LEV	The ratio of short and long term debt over total assets	IPO Prospectus
BUBBLE	An indicator variable that is set equal to 1 if the initial public offering took place in the year 1999-2000	

[46] See http://www.techamerica.org/sic-definition. Retrieved on 02/08/2011

Panel B: Variables Used in Additional Analysis		
UP_ADJ	The percentage difference between the offer price and closing stock price at the first day of trading adjusted to market returns	IPO prospectus and CRSP database
UP_3	The percentage difference between the offer price and closing stock price at the third day of trading	IPO prospectus and CRSP database
INST_L	An indicator variable that is set equal to 1 if the county of origin of the IPO is listed in Leuz (2010) in Cluster 1, 0 otherwise	Leuz (2010)
INST_EU	An indicator variable that is set equal to 1 if the Euromoney index ranking as presented in Bruner et al. (2004) for the home country is above the sample median, 0 otherwise	Bruner, Chaplinsky, and Ramchand, 2004
CHINA	An indicator variable that is set equal to 1 if the home country is China, 0 otherwise	IPO Prospectus
NYSE	An indicator variable that is set equal to 1 if the stock market of the issuing is New York Stock Exchange, 0 otherwise	IPO prospectus and CRSP database
AMEX	An indicator variable that is set equal to 1 if the stock market of the issuing is American Stock Exchange, 0 otherwise	IPO prospectus and CRSP database
NASDAQ	An indicator variable that is set equal to 1 if the stock market of the issuing is NASDAQ, 0 otherwise	IPO prospectus and CRSP database
PREMIUM	The IPO offer price per share minus the book value of equity per share after the offering, and the difference is divided by the offer price	IPO prospectus and CRSP database
CONSRV	Minus one multiplied by net income before extraordinary items plus depreciation and amortization minus operating cash flows deflated by total asset at the beginning of the fiscal year. All figures correspond to the fiscal year preceding the IPO date	IPO prospectus

CHAPTER 5

THE EFFECTS OF HOME COUNTRY INSTITUTIONS ON THE AFTERMARKET STOCK PERFORMANCE OF FOREIGN IPOs IN THE US

Chapter 5:
Paper 3- The Effects of Home Country Institutions on the aftermarket stock performance of Foreign IPOs in the US

5.1 Introduction

This paper investigates information problems associated with aftermarket performance of foreign IPOs in the US. More specifically, it examines the relation between the legal institutions at the country of origin and the long-term performance of foreign IPOs. This relation is suggested to have a considerable influence on management behavior, investors' confidence and information quality. The focus in this unique setting addresses some of the questions regarding the relation between long-term performance and institutions and the effectiveness of listing in foreign markets in mitigating them. The paper also studies the nature and magnitudes in which the accounting and governance legislations passed in the Sarbanes-Oxley Act of 2002 have affected the aftermarket performance of the foreign IPOs as a proxy for information asymmetry problems. Moreover, it accounts for additional governance and reporting factors that are related to the country-of-origin. By doing so, it offers additional inputs to the ongoing debate with regard to the effects of SOX on the cost of capital of firms, and in this specific case, foreign IPOs.

The main motivations for the focus of the paper are the following. First, over the last three decades, many firms have been bypassing their home capital markets raising equity capital in foreign markets (Blass and Yafeh, 2001; Foerster and Karloyi, 2000; Piotroski and Srinivasan, 2008). The main targeted markets have traditionally been the US markets. However, with the launching of the Alternative Investment Markets (AIM) in London in 1995 many foreign firms

have chosen to list in the UK[47]. The large increase in foreign listing is to a large extent due to the attractiveness of AIM to smaller firms (Doidge et al., 2009). Recently, the leading targeted market for foreign firms in the Hong-Kong Stock Exchange (SEHK)[48]. Thus, studying the aftermarket performance of these firms is essential in understanding the recent global trend of listing in foreign markets.

Second, long-term performance has been researched widely in the accounting and finance literature. In relation to domestic US IPOs, empirical evidence indicates significant underperformance of IPOs throughout the first years of listing relative to US mature firms benchmarks (Ritter, 1991; Spiess and Affleck-Graves, 1995; Loughran and Ritter, 1995). Nevertheless, long-term underperformance of new listings is not limited to US IPOs. For example, Levis (1993) finds similar evidence for UK first time issues. However, most studies exclude foreign IPOs from their sample and not much has been done to explore this unique set of firms. I argue that this specific group of firms is different in nature and thus should be studied independently of the IPOs at their country of origin or domestic IPOs in US capital markets. For example, Blass and Yafeh (2001) examine the long-term performance of Israeli IPOs in the US from 1990-1996 and compares this group of companies to their US peers and to IPOs at their home country. The authors find that the Israeli firms that are listed in the US are of higher quality relative to Israeli IPOs that remain at their home capital market though still underperforming in the long-run. Thus, the results of this study suggest that firms that chose to list in the U.S may be different relative to their market peers as well as their US peers. Therefore, I argue that it is not plausible to simply infer about the long-term performance of foreign IPOs by studying the long-term performance at the country of origin or by focusing on the long-term performance of domestic IPOs in the US. In other words, not much is yet known about the long-term performance of this under-researched group of companies.

[47] See Arcot, black and Owen (2007) "From Local to global. The Raise of AIM as a Stock Market for growing Companies". Retrieved on 14 March from http://www.lse.ac.uk/collections/law/staff%20publications%20full%20text/black/121107FINALAIMshortreport.pdf on 18 March 2013.

[48] See Paul J Davies "HK moves to make foreign listing easier", *The Financial Times* November, 2012. He reports that the Hong Kong stock market and regulators are even considering further changes to make this market even more attractive to foreign companies. Retrieved from http://www.ft.com/cms/s/0/eb4d88cc-3549-11e2-bf77-00144feabdc0.html#axzz2RTkVxTHU on 24 April, 2013.

Furthermore, most of the studies on foreign firms in the US focus on SEO listing in the form of cross-listing or prior listings of foreign firms in the form of American Deposit Receipts (ADRs). Thus, most studies ignore foreign firms that choose to list common equity directly in the US without any prior listing or through the ADR programs (e.g. Bruner et al., 2004; Diro Ejara and Ghosh, 2004, Foerster and Karloyi, 2000; Hostak et al. 2009).

Third, prior research on foreign firms in the US generally ignores the effects of the legal institutions at the country of origin on the performance and behavior while mostly examines the foreign firm as a homogenous group (e.g. Coffee, 1999, 2002; Hostak et al., 2009; Hursti and Maula, 2007). The "bonding" hypothesis (Coffee, 1999) suggests that by listing in overseas capital markets; say the US, firms that are coming from less developed home legal institutions can "bond" themselves to the host country legal institutions. Consequently, listing in a country with stronger legal institutions may lead to a reduction in foreign firm's cost of capital. In the extreme case, it is plausible that by listing exclusively in the US, foreign IPOs credibly commit to US disclosure and enforcement rules. This is due to the fact that by being listed exclusively in the US, these foreign firms are scrutinized by US regulatory and enforcement institutions in a similar fashion to the domestic US IPOs. Thus, this argument supports the notion of irrelevance of home legal institutions for foreign IPOs' performance. However, there are some opposing arguments and findings to this view that listing in the US necessitates an assurance to higher reporting standards and performance. Licht (2003), Siegel (2005), and Licht et al. (2011) argue that shareholders of foreign firms in the US and the SEC have been ineffective in monitoring and scrutinizing foreign registrants. These papers suggest an alternative motivation to the "bonding" Hypothesis for listing in the US. According to their view, firms may seek an overseas listing because it provides access to cheap finance and enhancing issuers' visibility, not because they want to commit to higher corporate governance standards. Thus, by studying the differences in long-term performance within this heterogeneous group of firms this paper suggests further insights into the nature, motivations and behaviors of foreign IPOs in the US, as well as the impact of home country institutions.

Fourth, this paper also examines the effects of the changes in the institutional environment at the host country (the US) as a result of the enactment of SOX in 2002. The Act has improved the internal control mechanisms, the disclosure requirements and the reporting quality of both listed companies and firms in the process of going public in US capital markets. Therefore, it has been suggested to positively affect information asymmetry issues between management and investors related to the pre- and post- listing period. Consequently, the enactment of the Act should have an effect on the long-term performance of IPOs (Johnston and Madura, 2009). In the foreign IPOs setting, the changes in the information and legal environment in the US as a result of SOX could imply a common effect on foreign firms' but could also have different magnitudes of effects with respect to the foreign registrants' countries of origin. For example, firms coming from strong home legal institutions could show a stronger or weaker improvement in the long-term performance relative to IPOs that are coming from weak home legal institutions.

Fifth, using hand-collected data from IPO prospectuses, this study also investigates the governance, reporting and early performance factors which have been documented to have an effect on long-term performance in various settings but have not been utilized yet in studies of foreign IPOs which are traded on US capital markets (e.g. Hostak et al., 2007; Piotroski and Srinivasan, 2008). For example, firms coming from different home legal environments can set in place different governance mechanisms to mitigate agency problems which are associated with their home institutional environment. Thus, using the information from the prospectuses allows a deeper understanding to the role that governance mechanisms play in the long-term performance of IPOs.

I collected a sample of 291 foreign IPOs from 35 countries from 1990-2009. I measure the long-term performance over up to three years of these IPOs as the buy-and-hold abnormal return (BHAR) and compare them to three different benchmarks (i.e., CRSP value weighted market index, matching firm and domestic US IPOs). I then separate the sample of the foreign IPOs into two subsamples, namely strong and weak, based on the strengths of the home legal institutions of these IPOs. My main findings are as follows. First, I provide

evidence that foreign IPOs experience positive abnormal long-term performance throughout all the time periods tested in this paper, namely, over the first, second and third years of listing. These findings are robust to all benchmarks used. Second, I find that foreign IPOs from countries with weak home institutions experience higher long-term performance with respect to both mature domestic US firms and domestic US IPOs. Third, there is no indication for an effect of SOX on foreign IPOs as a homogenous group. However, SOX did improve the long-term performance of foreign IPOs with weak home institutions. In other words, results show that the post-SOX long-term performance of IPOs that are coming from weak home institutions is higher than the returns of this subgroup of IPOs in the pre-SOX period. This is consistent with Piotroski and Srinivasan (2008) who argue that the bonding-related benefits of a US listing has been increased after SOX in the case of foreign firms with weaker governance characteristics from US exchanges.

In addition to the main findings described above, results of the multivariate regression tests offer evidence for the controlling variable used. First, underpricing in the first day of issue is negatively associated with long-term performance. This is evident for both IPOs that are coming from strong and from weak home legal institutions. However, there is a significant difference in the magnitude of this relation. Specifically, the negative association between underpricing and the long-term performance is stronger in the case of IPOs that are coming from weak home legal institutions. Second, evidence suggests that offerings with stronger underwriters experience higher long-term returns for IPOs that are coming from strong home legal institutions. Furthermore, larger offerings are associated with lower long-term returns. In addition, foreign IPOs which are coming from weak legal institutions and operate in the Hi-Tech industry experience higher aftermarket performance relative. Overall, the above discussed results are consistent with the notion that foreign first time registrant's home countries security laws matter at least as much as the US laws (e.g., Siegel, 2005).

I contribute to the growing literature on the impact of legal institutions on the behavior and economic consequences of firms operating in foreign markets in several ways. First, there are only a limited number of studies that examine the

effect of home institutions and performance of foreign IPOs in the US or elsewhere. I argue that this group of firms is important to understand due to the fact that foreign IPOs are an increasing global and sizable phenomenon. Also, it is important to note that since the issuance processes across counties are different due to the institutional factors, it is difficult to conduct a cross-country comparison (Foerster and Karloyi, 2000). However, the focus on the home legal institutions of foreign IPOs as a unique set of firms sheds new light on the literature addressing the extent to which institutions affect firm performance (Doidge et al., 2007; Engelen and van Essen, 2010; Hail and Leuz, 2006).

The remainder of the chapter is organized as follows. In Section 5.2 I review related literature. In Section 5.3 I outline the research design. The sample is described in Section 5.4. The findings are reported in Section 5.5. Section 5.6 reports additional tests for robustness of the main findings, and Section 5.7 concludes.

5.2 Related Literature

The long-run performance of IPOs has been widely investigated in prior literature. The efficient market hypothesis suggests that there should be a similarity between returns of mature firms and the long-run returns of IPOs. Thus, with the completion of the issuing process an IPO "is just like any other stock and thus the aftermarket stock price should reflect the shares' intrinsic value" (Ritter and Welch, 2002, p. 1816). However, prior research documents large variations in price over the first few years after the IPO can be explained by price correction relative to the early prices in the initial period (e.g., Ritter and Welch, 2002). Miller (1977) argues that this correction is resulting from the fact that initial prices are mostly set by over optimistic investors due to the constraints in sorting IPOs and heterogeneous expectations regarding the valuation of a firms. This rationale is in line with Teoh et al. (1998) that find a positive relation between earnings management, or "optimistic" accounting, early in the life of the firm. Thus, over the first months of listing more information is revealed to the market and the prices adjust to the real value of the firm. In other words, these studies

suggest that long-run performance of IPOs is resulting from mispricing at the initial stage of listing due to limited information.

Other studies argue that the aftermarket stock performance of IPOs is strongly related to information asymmetry and agency conflicts. The underlying rationale is that an IPO is regarded as the first 'liquidity event' in the life cycle of a fast-growing company (Burton et al. 2010). As such, it facilitates a number of potential agency conflicts. For example, Brav and Gompers (2003) argue that an IPO introduces a potential adverse selection problem between managements and investors since management is limited in the accuracy of information it can credibly reveal to investors while investors are limited in their ability to produce an accurate valuation due to the little operating history. In addition, the incentives and objectives of the early stage investors may not be aligned with those of the public market investors (Burton et al. 2010). Over time, with more information that is revealed to the market, prices adjust to better reflect the real value of the firm which accounts to potential agency problems.

Empirical evidence on the aftermarket stock performance of IPOs over the last few decades has typically indicated underperformance (Ritter, 1991; Aggrawal et al., 1993; Boulton et al. 2011). This evidence is not restricted to domestic US IPOs alone and has been documented across nations (Ritter, 1991). For example, Levis (1993) find negative long-term performance for UK IPOs. Ljungqvist (1997) finds similar results for German IPOs and McGuinness (1993) reports -18.26% a decrease in the market adjusted price of domestic IPOs in Hong-Kong.

In the foreign firms setting, Foester and Karloyi (2000) find a significant underperformance over three years of 333 ADRs issues in the US relative to the market index. Callaghan et al. (2000) study the long-term performance of 66 ADRs, with both IPOs and SEOs, traded on the NYSE between the years 1986-1993. They report a 19.6% decline in the value during the first trading year relative to the market index. They further document an outperformance of firms from emerging markets relative to those which are coming from developed countries. More recently, Schaub (2013) documents similar evidence with relation to the long-run performance of ADRs traded on US capital markets. According to

these studies, the theoretical explanation of the outperformance of ADRs in these studies is grounded in the diversification objectives of domestic US investors. Specifically, by investing in ADRs, US investors can diversify their portfolio at low costs. However, these studies do not separate initial offerings from seasonal offerings and do not include firms that are doing a direct listing and do not list through the ADR programs. Also, there is only limited evidence for an institutional factors influence in foreign firms traded on US markets as a whole and IPOs specifically.

In addition, prior research suggests that long-run stock performance is linked to national institutional environments. For example, Burton et al. (2010) document significant differences in the relation between ownership concentration and IPO performance based on the legal system (common law vs. civil law) at the country of issuing. They also show that the role of VC backing in IPOs performance varies between these legal systems. Finally, they also document evidence that the retained ownership of initial investors has a different impact on IPOs performance between the two legal systems. Thus, studying all foreign first time issues by focusing on their home institutions may enhance the prior findings further especially with respect to the question of whether global listing helps to mitigate or maybe even eliminate the effects of home country institutions.

Besides cross-country institutional differences that may affect long-term performance, SOX may have altered the institutional environment in the US and possibly also the long-term performance of stocks which are listed on US capital markets. This is due to the changes that SOX has imposed on internal control mechanisms, and, accordingly, the expected costs of internal control and reporting for both listed companies and firms in the process of going public. As a result of the Act, IPOs are required to have 'audit committees and internal controls in place at least one year prior to going public' (Johnston and Madura, 2009, p. 296). For example, SOX is suggested to alleviate information asymmetry issues related to the pre-listing period between management and investors, and, consequently, should have an effect on IPOs pricing as measured by the level of underpricing (Webb, 2008).

However, the effect of SOX is not limited only to the short-run or initial returns but can also influence the long-term performance of IPOs (Johnston and Madura, 2009). For example, there is evidence that when initial returns are high, firms experience a lower long-run performance as a result of over optimistic expectations of uninformed investors at the issuing time (Aggarwal and Rivoli, 1990). The rationale behind this argument is that once the IPO process is completed and stocks are issued on the market, the firm must comply with stricter reporting and disclosure requirements. As a result, more information is revealed to the market and with time the stock price converges to its real value based on the higher degree of information available (Ritter, 1991; Carter et al. 1998).

Moreover, the introduction of SOX increases information disclosure. Therefore, overly optimistic expectations of investors are expected to be lower with comparison to the pre-SOX era, yielding lower initial returns. Consequently, there should be a decrease in the occurrences of aftermarket corrections. In other words, long-run performance of IPOs should be more positive after SOX (Johnston and Madura, 2009). In the case of foreign companies, the introduction of SOX suggests that companies must disclose substantially more information in post-SOX period (Chang and Sun, 2009).

Furthermore, among the key alterations introduced by SOX stands the increase in managerial accountability to reports. This, together with the increasing level of information disclosure is expected to reduce moral hazard problems. To this date, no study has focused on the effects of SOX on potential moral hazard problems in foreign IPOs. These are expected to be different in comparison with domestic public firms in the US due to the following specific characteristics (Chang and Sun, 2009).

Firstly, the enhancement in accounting and reporting disclosures suggests higher financing costs when firms are operating in centralized economies with weak institutional environment. Thus, firms in financial distress can get an easy and relatively cheap access to funds when these are not subject to strict regulations and reporting (Healy and Palepu, 2001). In that respect, the introduction of SOX and the increasing requirements suggest lower long-term returns. However, Hostak et al. (2009) argue that the introduction of SOX harmed

the attractiveness of the US capital markets for such firms and even hold strong incentives to delist from major exchanges or to 'go dark' (Marosi and Massoud, 2007). Hostak et al. (2009) argue that the foreign companies that remained listed after the introduction of SOX are the ones with better corporate governance mechanisms. However, this problem is related to the selection biased and will not be explored in this paper.

Secondly, since the SOX increased management accountability (Johnston and Madura, 2009), the institutional and legal framework of the home country is likely to have a significant impact on moral hazard problems. Thus, in the pre-SOX period, management accountability was lower, which can explain the motivation of managements to engage in opportunistic behavior after the listing. Thus misconducts are captured in the long-run performance. In fact, the suggested relationship between insiders' trading and long-term performance has been in the centre of attention in recent years. One hypothesis proposes that when there is a significant information asymmetry between management and investors, a buy or sell action of an insider will reveal information to the market regarding the true value of the company. For example, when an insider buys stocks, market participants can translate the action as a signal of underpriced stocks and visa-versa (Kyle 1985).

Thus, the long-run performance of foreign IPOs is expected to be higher than in the pre-SOX period since there should be less information asymmetry, due to more accountability, audit independence and reporting quality. Furthermore, the reduction in information asymmetry is suggested to have two effects. First, it will attract higher quality firms that are less reluctant to reveal information and therefore are willing to list in US markets. Cohen et al. (2008) document a significant decline in earnings management in the initial stage of filing in the post-SOX period. Therefore, this development suggests less information asymmetry between management and investors. Thus, SOX serves as screening mechanism for firms going public and hence "firms that are more willing to be transparent would still pursue an IPO, while some firms that have something to hide can avoid the SOX provisions by remaining private" (Johnston and Madura, 2009, p. 296). In the case of foreign companies this effect will be even stronger as

companies face the possibility to peruse an IPO at their home capital market and or to go public in another global market instead of the US, which is proven to have a strong investor protection (La Porta et al., 2000). Secondly, there will be less need for price correction originated by overoptimistic uninformed investors (Aggarwal and Rivoli 1990; Ritter, 1991; Loughran and Ritter, 1995).

As mentioned above, the motivation of focusing on foreign companies traded exclusively in the US is originated from various factors. First, the introduction of SOX in 2002 initiated a dramatic change in the flow of international companies to US capital markets. Moreover, many firms that were already traded in the US for a number of years found the new requirements too costly in terms of both compliance expenses and loss of managerial rents (Hostak et al., 2009). Second, research suggests that the characteristics of the domestic IPOs and the foreign IPOs are different and as a result may have different information asymmetry problems. To date, not much has been done to explore these interesting issues and to test how the requirements of SOX affected agency conflicts tensions between managements and investors evident in the long-term performance of foreign IPOs. In fact, differences in country-of-origin, institutional frameworks and specific investor and foreign management information problems imply different considerations for foreign companies.

To conclude, this paper contributes to existing literature by focusing on the effect home legal institutions and of the Sarbanes-Oxley Act on information asymmetry problems in the case of foreign companies using long-term performance as a proxy for information quality and agency problems. To measure the long-run performance of US IPOs, I examine the first one-two- and three-years abnormal returns of IPOs occurring before and after SOX. The next section provides a detailed description of the research design.

5.3 Research Design

In order to test the potential effects of the country of origin on the aftermarket performance of foreign IPOs in the US, I use the buy-and-hold abnormal returns (BHAR) for the one, two and three years following the IPO date.

With accordance to Johnston and Madura (2009), aftermarket returns are calculated from the first day after the offer date, i.e. from the second day of trading, to the end of the first, second and third years of listing using the buy-and-hold abnormal returns as represented by Equation 5.1.

Equation 5.1

$$BHARJ_i = \prod_{t=1}^{T}(1+R_{i,t}) - \prod_{t=1}^{T}(1+R_{b,t})$$

Where $J=\{1,2,3\}$ for the first, second and third year *BHAR*, respectively.

$R_{i,t}$ stands for returns (in decimal form) of the IPO firm *i* on a trading day *t*, and $R_{b,t}$ represents the CRSP value-weighted market index (in decimal form) over the same period. Since Cowan and Segeant (2001) establish that winsorized abnormal returns produce more powerful test statistics, the abnormal returns are winsorized at 1% to decrease the influence of outliers.

To test for a potential difference in long term performance between firms from different institutional environment and whether long-term performance is different after SOX, I estimate the following regression model with *BHAR1-BHAR3* being used as the dependent variables:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM + \beta_5 AUD_i + \beta_6 UW_i + \\ & \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_8 HITECH_i + \beta_9 SIZE_i + \varepsilon_i \end{aligned} \quad (5.1)$$

Where $J=\{1,2,3\}$ for the first, second and third year *BHAR*, respectively.

$BHARJ_i$ is a measure of the aftermarket performance of the IPO as defined in Equation 5.1. The variable $INST_i$ indicates the institutional setting of the home country. It is based on the product of two underlying measures. The first is the La Porta et al.'s (1998) index of anti-director rights, as adjusted by Spamann (2010).[49] The second measure is the International Country Risk Guide (ICRG) Law and Order index[50]. I use the product of these two measures because the anti-director rights index covers only aspects of *de-jure* regulation by capturing six

[49] Spamman (2010) shows that his revised index markedly differs from both La Porta et al. (1998) as well as its later revision that is provided in Djankov et al. (2008).
[50] Collected from http://www.prsgroup.com/icrg.aspx.

sub-indices indicating the letter of the law, not its enforcement in practice (Durnev and Kim, 2005; Bruno and Claessens, 2010). On the other hand, the Law and Order index assesses the *de-facto* law and order traditions, such as enforcement, of a country as well as the legal system. To each foreign IPO we assign the specific country-year score according to the year of the IPO and its home country to capture both *de-jure* and *de-facto* aspects of investors protection (Durnev and Kim, 2005; and Bruno and Claessens, 2010). Consistent with earlier studies (e.g., Leuz et al. 2009; Pinkowitz et al. 2006), I next divide the sample into strong (weak) home institutions according to whether the country's score falls above (below or at) the sample median of the product of these two measures. The indicator $INST_i$ is set equal to one if the country's score is above the sample median, and zero otherwise.[51]

Model 5.1 includes control variables as follows. The variable UP_i is a measure of underpricing level defined as the percentage difference between the offer price and closing stock price at the first day of trading. I include this variable to account for the relationship between underpricing and long-term performance as documented in many studies across time (e.g., Ritter and Welch, 2002). SOX_i serves as an indicator to post-SOX listing and thus captures the effect of the Act. It is included to control for (and assess the extent to which) the stricter regulatory has influenced long-term performance in foreign IPOs. EM_i is a measure of signed discretionary accruals follows Ball and Shivakumar (2008) who investigate the magnitude of earnings management around initial public offerings in the UK. This measure modifies the Jones (1991) model by incorporating conservative asymmetric accruals. The measure is included to capture the extent to which management is contributing to the optimistic valuation of the IPO by investors. This has been documented to impact long-term stock performance (Teoh et al., 1998). AUD_i indicates the prestige of the auditors. It is an indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990-1997, 1998-2001 and 2002 onwards, respectively; 0 otherwise. It is included since auditors influence the quality of reported numbers, especially in the context of issuing shares (Fan

[51] An alternative approach is to calculate the median score for each year and so *INST* is set to one if the country's score in a particular year is above that year's median. However, country scores are very stable, and there is not much difference in the value assigned to $INST_i$ under the alternative way.

and Wong, 1996; Beatty 1989) and thus may also affect the valuation results of investors which in turn after the long-term abnormal return levels. UW_i ranks the offering's leading underwriter's prestige, as per Jay Ritter's website. Underwriter prestige has been documented to have a positive impact on reducing information asymmetry in IPOs (Balvers et al. 1988; Carter and Manaster, 1990; Carter et al., 1998). In addition, Carter et al. (1998) IPOs with high quality underwriters perform better in the long-run relative to those with less reputable underwrites. $INSIDER_i$ measures the ratio of primary shares retained by insiders over all shares outstanding after offer (Kaserer et al., 2011; Johnston and Madura, 2009). I include this variable because ownership structures vary globally and are correlated with both institutions and stock performance (e.g., Burton et al., 2010). AGE_i this variable controls for the number of days between the issuing and the firm establishment dates (Daily et al., 2005). The age of the firm is expected to increase the amount (and perhaps the quality) of information available to market participants thus reducing mitigating their risk arising out of any uncertainty associated with the issue (Johnston and Madura, 2009). $HITECH_i$ is an indicator for a high-tech industry membership. This is due to the fact that this industry is characterized by high information asymmetry (Barth et al., 2001) and may also be particularly exposed to litigations risk (Johnson et al., 2001). $PROCEEDS_i$ indicates the gross proceeds on the issue. Michaely and Shaw (1994) argue for a positive relationship between offering size and market scrutiny. Also, a large offering is expected to initiate a higher demand on the initial day of the offering. This combined with investors over optimistic valuation of firms may revert with time and result in lower long-term stock performance. A more detailed description of these variables is presented in Appendix 5.A.

In the regression Model 5.1**,** the coefficient on *INST* captures the incremental effect of the strength of home institutions on the intercept. For example, a positive sign implies that new issuers coming from strong institutional environments experience higher aftermarket performance relative to IPOs from countries with weak institutions. However, if by listing in the US firms circumvent the influence of their home institutions regardless of their strength, the coefficient on *INST* is expected to be statistically insignificant. In addition, in

regression Model 5.1, a positive (negative) statistically significant coefficient on any of the vector variables implies a positive (negative) relation to long-term stock performance.

One limitation of Model 5.1 is that it assumes that all coefficients apart from *INST* are assumed to be the same for foreign IPOs from both weak and strong legal environments. However, these issuers may be different according to their country of origin. In such cases, the restriction may not be economically justified and a test that allows coefficients to play different roles in each of the two subsamples should be employed. Thus, in order to test for differences between first time issues with respect to their institutional environment at the country of origin, I run Model 5.1 separately for the two subsamples and report the differences in the coefficients using interactions of *INST* with all of the vector variables. To the extent that long-term performance is not affected by the IPOs home environment when listing in the US, the results for the two subsamples should not differ.

Finally, to test for the effects of SOX on long-term stock performance, I run Model 5.1 separately for the pre- and post- SOX subsamples and report the differences in the coefficients using interactions of *SOX* with all of the explanatory variables. To the extent SOX has no impact on long-term performance in the case of foreign IPOs listing in the US, the results for the two subsamples should not differ.

5.4 Data and Sample Selection

There are numerous challenges in the sample selection process. First, all foreign firms that made their initial public offering to the US between 1993 and 2009 are to be identified. I used Security Data Corporation (SDC) New Issues database classification in which foreign firms are firms that were incorporated and whose primary executive offices are located outside of the US.

Second, consistent with Bruner et al. (2006) the sample excludes equity listing that originated from spin-offs of publically-listed companies or from mergers and acquisitions. The sample selection eliminates any warrants, units and

rights offerings. In addition, I exclude IPOs from financial institutions (4-digit SIC codes 6000-6999) and public utilities (4-digit SIC codes 4900-4949) due to the different structure of their financial statements and regulatory environment. Furthermore, firms that are based in that Bahamas, Cayman Islands, and Bermuda are also removed from the selected sample. This is owing to the fact that those are typically US or European firms within the financial services industry that are registered in these geographical locations for tax consideration and although they comply with the definition of foreign companies, they do not correspond to the conceptual framework of this research.

Third, IPO prospectuses are used to obtain accounting and corporate governance variables needed for the empirical investigation. The primary sources for the prospectuses are the Edgar database provided by the SEC and the Perfect Filing database. Fourth, I obtain issue data manually from prospectuses when non-US dollar figures are transformed to US dollar figures based on the exchange rates disclosed in prospectuses. Thereafter I index the US figures to 2005 US value based on the Consumer Price Index (CPI) as reported by the International Monetary Fund[52]. Fifth, I obtained data on the NASDAQ value weighted index from Bloomberg. In addition, I computed the first day return or underpricing by deducting the offer price collected from the prospectuses from the first CRSP-reported trading of the IPO stock closing price (Carter et al., 1998) where this is not larger than two days following the offering. I also match the figure reported by CRSP reported figure with that reported by SDC Platinum and when the two do not match these were crossed checked with other public sources to obtain the most accurate first day closing price. Finally, the aftermarket returns are calculated using stock prices, market returns and other adjusted factors from CRSP.

As reported in Panel A of Table 5.1, the final IPO sample compromises of 291 listings. Panel B also presents the industry composition of the sample according to the Fama-French (FF) 12-industry classification. This Panel shows that the largest group of IPOs in the sample is in the Business Equipment industry (FF6), followed by the Telephone and Television Transmission (FF7), and

[52] Retrieved from http://www.imf.org/external/data.htm#data on April 2011

Manufacturing (FF3). Out of the overall sample, 202 are pre-SOX issues and 89 are Post-SOX as Panel B indicates.

Panel C of Table 5.1 reports the distributions of IPOs according the country of origin in a four year window from 1990-2009. Consistent with other studies on foreign issuers in the US, the largest number of IPOs is from China (51), followed by Israel (48) and UK (29). Most of the IPOs come from the years before 2001, reflecting the burst of internet and dot.com bubble of 2001 and its effect on the high-tech sector which generates many IPOs (about 30% of the total sample).

Table 5.1: Summary Statistics

Panel A: Sample Development

	Number of Firms
All SDC Platinum new US Foreign listings in years 1990-2009	677
Excluding observations:	
For which prospectus not available	196
With offering other than common/ordinary stock	117
For financial services firms and utilities	10
With insufficient financial data necessary for our analyses	38
With less than 10 observations for year and industry matching	1
Final Sample	291

Panel B: Sample Selection by Fama-French 12 Industry Classification

FF1	Consumer Non-Durables	9
FF2	Consumer Durables	7
FF3	Manufacturing	22
FF4	Oil, Gas, and Coal Extraction and Products	3
FF5	Chemicals and Allied Products	7
FF6	Business Equipment	118
FF7	Telephone and Television Transmission	45
FF8	Utilities	-
FF9	Wholesale, Retail, and Some Services	7
FF10	Healthcare, Medical Equipment, and Drugs	27
FF11	Finance	-
FF12	Other	46
Total		**291**

Panel C: Country of Origin by Period

Country	1990-1993	1994-1997	1998-2001	2002-2005	2006-2009	Total	Avg. ICRG Index
Argentina	0	0	1	0	1	**2**	**11.25**
Austria	0	0	1	0	0	**1**	**24.00**
Australia	0	2	0	0	0	**2**	**20.00**
Belgium	0	1	0	0	0	**1**	**10.00**
Brazil	0	1	0	0	0	**1**	**15.00**
Canada	0	8	14	2	3	**27**	**24.00**
Chile	1	2	0	0	0	**3**	**23.33**
China	0	0	6	12	33	**51**	**13.36**
Denmark	1	0	0	0	0	**1**	**24.00**
Finland	0	1	0	0	0	**1**	**24.00**
France	1	6	5	0	0	**13**	**27.08**
Germany	0	2	4	0	0	**6**	**22.67**
Greece	0	0	3	2	2	**7**	**12.00**
Hong-Kong	1	9	3	3	0	**16**	**20.50**
Indonesia	0	1	0	0	0	**1**	**8.00**
India	0	0	2	0	0	**2**	**16.00**
Ireland	0	3	4	0	2	**9**	**24.00**
Israel	3	17	16	5	7	**48**	**16.25**
Italy	2	3	1	1	0	**7**	**11.71**
Japan	0	0	2	0	0	**2**	**25.00**
Jordan	0	1	0	0	0	**1**	**12.00**
Luxemburg	1	0	1	0	0	**2**	**12.00**
Mexico	2	0	0	1	0	**3**	**7.00**
Netherlands	1	13	6	0	1	**21**	**24.00**
New-Zealand	1	3	0	0	0	**4**	**24.00**
Norway	0	0	1	0	0	**1**	**24.00**
Poland	0	1	0	0	0	**1**	**24.00**
Singapore	0	2	2	0	2	**6**	**22.67**
South-Africa	0	0	0	1	0	**1**	**12.50**
South-Korea	0	1	3	3	1	**8**	**23.50**
Spain	0	0	1	0	0	**1**	**30.00**
Sweden	0	3	0	0	0	**3**	**24.00**
Switzerland	0	3	3	1	0	**7**	**17.14**
Taiwan	0	0	0	1	1	**2**	**25.00**
UK	0	18	9	2	0	**29**	**24.24**
Total	**14**	**100**	**87**	**35**	**54**	**291**	**19.38**

Table 5.2 reports the Pearson's' pair-wise correlation coefficients of the variables contained in Model 5.1 as well as the ones used for the sensitivity analysis in subsection 5.3. There is a significant correlation between *BHAR1* and *BHAR2* with *INST*, suggesting a negative relation between home institutions on the long-run stock performance in the first two years of listing in the univariate analysis. In contrast, *UP*, *SOX*, *EM*, *AUD*, *UW*, *VC*, *INSIDER*, *AGE* and *HITECH* are not correlated with the different period's measurements of *BHAR*. Finally,

PROCEEDS negatively correlated with *BHAR1*, *BHAR2* and *BHAR3*. In the next section, I examine the effect of the above mentioned factors on underpricing with both with respect to home institutions and the enactment of SOX.

Table 5.2: Selected Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	***BHAR1***													
2	***BHAR2***	0.62												
3	***BHAR3***	0.55	0.72											
4	***INST***	-0.13	-0.12	-0.06										
5	***UP***	-0.07	-0.05	-0.06	0.01									
6	***SOX***	0.06	0.01	-0.02	-0.35	-0.13								
7	***EM***	0.09	0.07	0.09	0.05	0.00	0.05							
8	***AUD***	-0.04	-0.01	-0.02	0.03	-0.05	0.12	-0.01						
9	***UW***	-0.07	-0.10	-0.10	0.03	-0.03	0.10	-0.18	0.53					
10	***VC***	-0.02	0.02	0.00	-0.13	-0.09	0.33	-0.02	0.23	0.18				
11	***INSIDER***	0.03	0.02	0.01	-0.15	0.09	0.09	-0.06	-0.01	0.03	0.11			
12	***AGE***	-0.04	-0.04	-0.03	0.09	-0.10	-0.13	-0.11	-0.02	0.04	-0.22	-0.10		
13	***HITECH***	0.06	0.09	0.09	0.02	0.09	-0.03	-0.01	0.03	0.14	0.02	0.20	-0.24	
14	***PROCEEDS***	-0.16	-0.14	-0.13	0.10	0.01	-0.02	-0.17	0.41	0.59	-0.04	-0.11	0.12	0.09

Note:
Table 5.2 presents Pearson correlation coefficients for variables used in the main analysis (Panel A) and in the additional analysis (Panel B). Correlations above 0.11 and below -0.11 are significant at the 0.05 level. See Appendix 5.A for variable definitions.

5.5 Empirical Results and Discussion

The section presents the findings of empirical investigations following on from the methodology and theoretical formulations. The results are further sub-divided into the findings from the univariate analysis which used for indicative purposes, followed by the primary regression analysis with subsequent variations and interaction terms. Thereafter, the results conclude with additional analyses aimed at strengthening the primary findings.

5.5.1 Univariate Analysis

Table 5.3 reports and the means and the difference in means of returns between the IPO sample and difference comparable benchmarks. The first benchmark is the CRSP value-weighted market index over the same period, the second benchmark is a portfolio of domestic US IPOs matched by industry and issuing year to each foreign IPO sample. The third benchmark is a portfolio of matching domestic US mature firms when each foreign IPO sample is matched to a firm that has the minimum sum of differences of the book-to-market ratio and market size[53]. Panel A reports the means and differences in means for the full sample, Panel B reports the same for the Strong subsample and Panel C does the same for the Weak subsample. The *p*-value columns report the significant levels of the difference in means. The results in the table suggest that the foreign IPO sample as a whole experiences significantly higher long-run returns in all time periods and across all benchmarks except for the matching firms benchmark in the third year of listing. In the latter case, results are still positive but not significant. Thus, these results support the notion that the foreign firms that list in the US are of higher quality comparing to their US IPO peers as suggested by Blass and Yafeh (2001) and Bruner et al. (2006). Furthermore, when dividing the foreign IPOs sample by the home legal institutions I find no significant evidence for higher abnormal returns for the Strong subsample in most periods and most

[53] The merits and problems of each benchmark are discussed in the Additional Analysis section.

benchmarks. This is in contrast to the evidence from the weak subsample that shows a clear and significant higher performance of this group of IPOs across all benchmarks and all periods, except for the matching firms benchmark in the third year of listing. This is in line with Bruner et al. (2004) that find that foreign firms that come from emerging markets are of higher quality comparing to their US and foreign peers.

Table 5.3: Differences in the Means of Long-Term Performance Between the Foreign IPOs and Benchmarks

	Means				Difference in Means					
	I	II	III	IV	I-II		I-III		I-IV	
	Foreign IPOs	Index Benchmark	US-IPOs Benchmark	Matching Firms Benchmark	Difference	*p*-value	Difference	*p*-value	Difference	*p*-value
Panel A: Full Sample										
BHR1	1.599	1.31	1.207	0.792	0.289	(0.023)	0.393	(0.000)	0.806	(0.000)
BHR2	1.753	1.13	0.97	1.325	0.622	(0.007)	0.783	(0.000)	0.427	(0.078)
BHR3	1.721	1.33	1.375	1.499	0.390	(0.002)	0.346	(0.056)	0.222	(0.811)
Panel B: Strong Subsample										
BHR1	1.302	1.222	0.763	0.929	0.080	(0.143)	0.539	(0.000)	0.373	(0.081)
BHR2	1.442	1.265	0.397	1.364	0.177	(0.118)	1.025	(0.001)	0.077	(0.860)
BHR3	1.446	1.225	1.142	1.403	0.221	(0.126)	0.304	(0.289)	0.043	(0.905)
Panel C: Weak Subsample										
BHR1	1.845	1.383	1.646	0.678	0.462	(0.002)	0.199	(0.023)	1.168	(0.000)
BHR2	2.021	1.034	1.552	1.293	0.987	(0.011)	0.465	(0.000)	0.719	(0.087)
BHR3	1.951	1.423	1.552	1.580	0.528	(0.015)	0.399	(0.028)	0.371	(0.357)

Note:
Table 5.3 presents the means of the returns of the foreign IPO sample and the indices used to adjust returns. *BHR1*, *BHR2* and *BHR3* are the buy-and-hold returns for the first, second and third years of listing, respectively, for each of the portfolios. Panel A presents the means, the difference in means and the *p*-value for test on differences for all foreign IPO sample. Thus, the Difference column reports the difference between two subsample means. The *p*-value shows the significant level of the test for differences. Panel B does the same for the strong home institutions subsample (Strong) and Panel C repeats for the weak home institutions subsample (Weak).

Table 5.4 presents summary statistics for the variables used in the empirical analysis. Panel A presents summary statistics for each variable in the pooled sample. As is evident from this panel, about 31% of the observations are post-SOX, insiders retain about 72% of the shares, and there are about 55% firm with High-Tech industry membership. The means of the returns adjusted to market are positive and significant for all time periods (*BHAR1*, *BHAR2*, and *BHAR3*). Thus, foreign IPOs outperform the market in all three periods. Panel B presents summary statistics for each of model variables in both the pre- and post-SOX periods. I show the results of univariate tests on the difference in means (*t-test*) and medians (*Wilcoxon rank-test*). The means and medians of the variables *BHAR1*, *BHAR2* and *BHAR3* show no significant differences between the pre- and the post-SOX periods. Likewise, there is no significant change in the levels of *EM* between the two periods. On the other hand, there are significantly more IPOs coming from weak institutional environments after the enactment of SOX as evident from the significant decrease of the mean (from 56.6% to 19.3%) and median of *INST*. Furthermore, underpricing (*UP*) is significantly lower in the post-SOX period. Also, there is a significant decline in the mean and median of *AGE* in the pre- and post- SOX periods.

Panel B also presents summary statistics for each of model variables in each of the strong and weak home legal institutions subsamples. As before, I show the results of univariate tests on the difference in means (*t-test*) and medians (*Wilcoxon rank-test*). Mean (Median) of *SOX* show significant differences between the weak and strong subsamples indicating different distribution of issuers between periods; when weak is almost evenly allocated across time but the listings of firms that are coming from strong home institutions fall sharply after SOX. The mean of *INSIDER* decreases from 71% to 69% (significant at 0.10 level) suggesting that offerings associated with stronger institutions leave less percentage of equity to insiders and are more overpriced. In addition, IPOs from weak institutional environments seem to be longer in business and larger in size as indicated but the significant increase in mean for *AGE* and *ASSETS*, respectively. Furthermore, issues from stronger institutions are significantly larger in size as demonstrated by the higher mean and median of *PROCEEDS*. The next section

reports and discusses the results obtained in the cross-sectional regression analysis.

Table 5.4: Univariate Analysis

Panel A: Descriptive Statistics for Full Sample

Variable	Full Sample N=291				
	Mean	**STD**	**Q1**	**Median**	**Q3**
Main Analysis					
BHAR1	0.289**	1.423	-0.364	-0.018	0.375
BHAR2	0.622***	3.377	-0.654	-0.137	0.547
BHAR3	0.390***	2.752	-0.821	-0.420	0.384
INST	0.451	0.498	0.000	0.000	1.000
UP	0.195	0.364	0.000	0.053	0.247
SOX	0.310	0.463	0.000	0.000	1.000
EM	0.140	1.200	-0.208	0.023	0.373
AUD	0.873	0.333	1.000	1.000	1.000
UW	7.981	1.949	8.000	9.000	9.000
VC	0.335	0.473	0.000	0.000	1.000
INSIDER	0.718	0.152	0.683	0.753	0.801
AGE	2.428	0.902	1.792	2.269	2.785
HITECH	0.542	0.499	0.000	1.000	1.000
PROCEEDS	18.521	1.430	17.802	18.446	19.224

Panel B: Descriptive Statistics for Post/Pre-SOX and Strong/Weak Institutional Environments

Variable	*(1) effects of SOX*										*(2) effects of home institutions (INST)*									
	Pre-SOX N=215					**Post-SOX N=105**					**Weak N=181**					**Strong N=138**				
	Mean	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**	**Mean**	**STD**	**Q1**	**Median**	**Q3**
BHAR1	0.235	1.525	-0.469	-0.113	0.274	0.410	1.163	-0.259	0.092**	0.652	0.462	1.714	-0.343	0.022	0.437	0.080**	0.920	-0.456	-0.066**	0.267
BHAR2	0.610	3.534	-0.654	-0.188	0.436	0.649	3.018	-0.661	-0.100	0.577	0.987	4.364	-0.683	-0.171	0.665	0.177**	1.346	-0.620	-0.129**	0.385
BHAR3	0.420	2.509	-0.788	-0.432	0.515	0.323	3.242	-0.937	-0.329	0.338	0.528	3.335	-0.886	-0.489	0.437	0.221**	1.801	-0.707	-0.305**	0.361
INST	0.566	0.497	0.000	1.000	1.000	0.193***	0.397	0.000	0.000***	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	1.000	1.000***	1.000
UP	0.227	0.403	0.000	0.081	0.275	0.123**	0.246	-0.024	0.035**	0.168	0.190	0.356	0.000	0.067	0.244	0.220**	0.376	0.000	0.027	0.252
SOX	0.000	0.000	0.000	0.000	0.000	1.000***	0.000	1.000	1.000***	1.000	0.455	0.500	0.000	0.000	1.000	0.133***	0.341	0.000	0.000***	0.000
EM	0.099	1.282	-0.290	-0.004	0.352	0.230	0.992	-0.082	0.063*	0.460	0.090	1.175	-0.175	0.059	0.378	0.201	1.232	-0.260	-0.018	0.343
AUD	0.847	0.361	1.000	1.000	1.000	0.932**	0.254	1.000	1.000**	1.000	0.865	0.342	1.000	1.000	1.000	0.883	0.323	1.000	1.000	1.000
UW	7.856	2.053	8.000	9.000	9.000	8.260	1.671	8.000	9.000**	9.000	7.925	2.017	8.000	9.000	9.000	8.050	1.868	8.000	9.000	9.000
VC	0.230	0.422	0.000	0.000	0.000	0.568***	0.498	0.000	1.000***	1.000	0.391	0.490	0.000	0.000	1.000	0.266**	0.443	0.000	0.000**	1.000
INSIDER	0.709	0.160	0.667	0.754	0.802	0.738	0.132	0.701	0.753	0.797	0.739	0.120	0.697	0.759	0.801	0.693**	0.181	0.644	0.744*	0.802
AGE	2.509	0.960	1.792	2.303	2.970	2.248**	0.730	1.778	2.197*	2.584	2.352	0.850	1.780	2.224	2.773	2.521	0.957	1.792	2.303	2.917
HITECH	0.551	0.499	0.000	1.000	1.000	0.523	0.502	0.000	1.000	1.000	0.532	0.501	0.000	1.000	1.000	0.555	0.499	0.000	1.000	1.000
PROCEEDS	18.539	1.530	17.639	18.372	19.427	18.482	1.188	18.039	18.480	19.013	18.388	1.457	17.675	18.294	18.969	18.683*	1.386	17.896	18.560**	19.553

Note:
Table 5.4 presents descriptive statistics for the full sample as shown in Panel A. Panel B reports descriptive statistics for Pre- and Post- SOX and between strong home legal institutions (*INST* = 1) and weak home legal institutions (*INST* = 0). Panel B also report the results of tests for the differences in the means and medians (the latter using Wilcoxon rank-test) under the Weak Home Institutions block. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. See Appendix 5.A for variable definitions.

5.5.2 Regression Analysis

As stated in Section 3, a limitation of Model 5.1 which uses only indicators for *INST* and *SOX* and assumes that all coefficients apart from *INST* are the same for foreign IPOs from both weak and strong legal environments which may not be the case if these populations are affected differently by some of the factors as the univariate analysis in substation 5.1 suggests. Thus, Table 5.5 presents the results for estimating Model 5.1 separately for the two strong and weak institutions subsamples and reports the differences in the coefficients using interactions of *INST* with all of the vector variables (denoted as Model 5.1.a with the full model specifications presented in the notes of Table 5.5).

Table 5.4 is separated by two sections; the first two left hand side columns show the results for Model 5.1 for strong and weak institutional environments respectively while the third column to the left reports the coefficients for the interactions Model 5.1.a. Thus, the reported coefficients are the differences between the coefficients observed in the strong and weak subsamples except for *INST* which is the difference between the intercepts of the strong and weak home institutions regressions. The *INST* coefficient for the difference between the subsample is negative and significant for *BHAR2* and *BHAR3*. These indicate lower aftermarket performance on average for IPOs from stronger home institutions. *BHAR1* however, suggest no differences between the two subgroups in the first year of listing. *UP* is negative in all three time periods (*BHAR1-BHAR3*) in for IPOs which are coming from weak home legal institutions with a positive difference coefficient for the two subsamples for *BHAR2* and *BHAR3*. In other words, underpricing is negatively related to long-term performance in IPOs from weak institutions with a significant difference in magnitude between the weak and strong home legal institutions subsamples. This contradicts prior studies that document a positive relation between underpricing and long-term performance and overrule the notion that underpricing is a signal for firm quality. The negative relation between underpricing of foreign IPOs from weak home legal institutions and significant difference between the two institutions subgroups

may suggest that the signal is weaker in the case of firms which are coming from weak home legal institutions. A potential explanation is that IPOs from weak home institutions are expected to underprice for other reasons than quality signaling. Francis et al. (2010) find that signaling determines IPO underpricing especially in the case of firms that are domiciled in countries with segmented markets. This is due to the higher information asymmetry and limited admission to foreign capital markets.

The coefficient of the *SOX* variable is not significant in the first two models and only significant in the three year buy-and-hold period for the IPOs which are coming from weak legal institutions. In the same model, there is also a significant and positive difference between the two subsamples. This indicates no significant difference in the effect of SOX on each of the two subsamples except for the three year period. A potential explanation is that listing in the US markets is more attractive in terms of signaling for IPOs from weak home institutions after SOX but the Act did not impact the quality of the issuers. *EM* is positively associated with long-run performance in the first two periods and for firms coming from strong home legal institutions. However, this evidence disappears in the when a three years period is considered.

In term of external parties, results do not support the notion that auditors' prestige (*AUD*) affects the long-term performance of each of the group. A potential explanation could be that these auditors are the ones which are signed on the prospectuses prior the IPO and may be quite different than the ones which are auditing the firm after listing. The underwriters of the IPO, however, are positively related to the second and third year's aftermarket performance of the IPOs which are coming from strong legal.

Findings from the examining of firm specific control variables show that the negative association between offer's size (*PROCEEDS*) mostly in the case of IPOs coming from strong home legal institutions. Also, the association to Hi-Tech industry positively related to long-term performance of IPOs from weak home legal institutions with a significant difference in the first two years of listing to those coming from strong home legal institutions. Thus, Hi-Tech firms from weak home legal institutions are suggested to be of a higher quality relative to their

peers at coming from strong home legal institutions due to the barriers of listing in the US (Bruner et al., 2006).

Table 5.5: Long-Term Performance Analyzed between Strong and Weak Home Legal Institutions benchmarked to CRSP value-weighted market index

	BHAR1			***BHAR2***			***BHAR3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	1.353	**3.551*** **		0.073	**9.478*** **		-0.336	**7.392** **	
	(0.214)	**(0.007)**		(0.960)	**(0.001)**		(0.864)	**(0.013)**	
INST			-2.199			**-9.405** **			**-7.728***
			(0.243)			**(0.017)**			**(0.080)**
UP	**-0.159***	**-0.458** **	0.299	-0.116	**-1.090*** **	**0.974** **	-0.092	**-1.098** **	**1.007** **
	(0.098)	**(0.027)**	(0.134)	(0.512)	**(0.009)**	**(0.021)**	(0.669)	**(0.015)**	**(0.020)**
SOX	0.278	0.035	0.244	0.127	-0.312	0.440	0.331	**-0.698** **	**1.029** **
	(0.223)	(0.797)	(0.377)	(0.687)	(0.267)	(0.247)	(0.469)	**(0.028)**	**(0.012)**
EM	**0.160** **	0.048	0.113	**0.438** **	0.031	0.407	0.236	0.105	0.131
	(0.026)	(0.631)	(0.357)	**(0.024)**	(0.850)	(0.161)	(0.150)	(0.434)	(0.573)
AUD	-0.328	0.355	**-0.683***	-0.438	0.847	-1.285	-0.466	1.051	**-1.517***
	(0.345)	(0.363)	**(0.096)**	(0.244)	(0.333)	(0.147)	(0.218)	(0.173)	**(0.065)**
UW	0.089	-0.024	0.113	**0.204***	-0.090	0.294	**0.139***	-0.236	**0.374** **
	(0.189)	(0.735)	(0.249)	**(0.071)**	(0.663)	(0.257)	**(0.097)**	(0.125)	**(0.024)**
VC	0.032	-0.268	0.300	-0.110	-0.243	0.133	0.447	-0.211	0.658
	(0.779)	(0.520)	(0.407)	(0.551)	(0.785)	(0.881)	(0.178)	(0.795)	(0.422)
INSIDER	0.055	0.268	-0.213	0.224	-0.347	0.571	-0.187	0.456	-0.643
	(0.869)	(0.602)	(0.769)	(0.568)	(0.759)	(0.686)	(0.789)	(0.712)	(0.666)
AGE	0.007	-0.026	0.032	0.142	-0.115	0.257	0.197	-0.188	**0.385** **
	(0.940)	(0.758)	(0.796)	(0.161)	(0.473)	(0.139)	(0.173)	(0.136)	**(0.016)**
HITECH	-0.159	**0.516*** **	**-0.675** **	-0.081	**0.946** **	**-1.028** **	0.093	**0.874** **	-0.782
	(0.290)	**(0.008)**	**(0.021)**	(0.675)	**(0.043)**	**(0.049)**	(0.774)	**(0.044)**	(0.149)
PROCEED	**-0.092** **	**-0.189** **	0.098	-0.089	**-0.447*** **	0.358	-0.040	**-0.312** **	0.271
	(0.025)	**(0.036)**	(0.305)	(0.455)	**(0.004)**	(0.109)	(0.784)	**(0.032)**	(0.279)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.091	0.071	0.092	0.171	0.077	0.102	0.055	0.109	0.099

Note:

1. The table presents results of the regression models of *BHARJ* (where *J*={1,2 and 3}). These are reported in Table 5.5 separately for the strong home institutions subsample (the Strong column) and the weak home institutions subsample (the Weak column). The Difference column reports the difference between the two

subsample coefficients using the interactions model described below. In the *BHAR1-BHAR3* columns the dependent variable is the long-term stock abnormal returns for the first, second third years of listing respectively, as explained in Table 5.5. We report *p*-values below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. See Appendix 5.A for variable definitions.

2. The regression model encompasses Model 5.1 and extends it to allow for interactions with *INST* is:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM_i + \beta_5 AUD_i + \beta_6 UW_i \\ & + \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_{10} HITECH_i + \beta_{10} PROCEEDS_i \\ & + \gamma_1 INST_i * UP_i + \gamma_2 INST_i * SOX_i + \gamma_3 INST_i * EM_i + \gamma_4 INST_i * AUD_i \\ & + \gamma_5 INST_i * UW_i + \gamma_6 INST_i * VC_i + \gamma_7 INST_i * INSIDER_i \\ & + \gamma_8 INST_i * AGE_i + \gamma_9 INST_i * HITECH_i + + \gamma_9 INST_i * PROCEED + \varepsilon_t \end{aligned} \quad (5.1.a)$$

The "Difference" column reports the value of the γ_i, $i = \{1,2,..,10\}$ coefficients, their *p*-values, as well as the adjusted-R^2 for this regression.

In Table 5.6 I repeat the analysis in Model 5.1 separately for the two subsamples and report the differences in the coefficients using interactions of *SOX* with all of the variables (denoted as Model 5.1.b with the full model specifications presented in the notes of Table 5.6). As a result, Table 5.5 is separated by two sections; the first two left hand-side columns show the results for Model 5.1 for pre-SOX and post-SOX respectively while the third column to the left reports the coefficients for the interaction Model 5.1.b. Thus, the reported coefficients are the difference between the coefficients observed in the two periods' subsamples except for *SOX* which is the difference between the intercepts. The *SOX* coefficient is positive but insignificant. This indicates no difference in long-term performance as a result of the enactment of SOX. Thus, this evidence rejects the likelihood of a reduction in long-term performance resulting from the assumed better information environment. When looking at the univariate results with relation to SOX, the clear difference in *BHAR* between the two periods becomes insignificant in the multivariate analysis due to the difference in explanatory variables between the two periods. *INST* is negative and significant in the pre-SOX period indicating higher long-term performance of IPOs coming from weak home domestic institutions across all time periods (*BHAR1-BHAR3*). This evidence is reverting in the third time window where IPOs from strong home legal institutions experience higher returns in the post-SOX period with a significant difference with respect to the pre-SOX period. Furthermore, underpricing is negatively and significantly associated with aftermarket performance in the pre-SOX periods across all the time windows examined (*BHAR1-BHAR3*). In addition, there is no evidence that well reputable auditors are affecting the aftermarket performance in the post-SOX period. Also, there is some evidence that *EM* is positively related to long-run stock performance in the first and second year of listing but only in the post-SOX period. The retained ownership after the IPO has a negative result on aftermarket performance in the second and third year of listing in the post-SOX period. The differences between the post- and pre-SOX periods are significantly different.

Lastly, the relation between offer size (*PROCEED*) and the long-run performance is significantly negative in the pre-SOX period. There is some

evidence that the performance of IPOs in the Hi-Tech industry is positively associated with higher first and second year stock returns in the post-SOX period.

Table 5.6: Long-Term Performance Analyzed between Post-SOX and Pre-SOX periods benchmarked to CRSP value-weighted market index

	BHAR1			***BHAR2***			***BHAR3***		
	Post-SOX	**Pre-SOX**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**
INTERCEPT	1.550	**3.294*****		2.662	**6.442*****		2.422	**5.279*****	
	(0.607)	**(0.006)**		(0.579)	**(0.001)**		(0.585)	**(0.001)**	
SOX			-1.745			-3.780			-2.857
			(0.551)			(0.414)			(0.501)
INST	-0.028	**-0.367***	0.339	-0.183	**-0.769*****	0.587	**0.662***	**-0.555***	**1.217*****
	(0.916)	**(0.072)**	(0.275)	(0.670)	**(0.003)**	(0.195)	**(0.066)**	**(0.053)**	**(0.005)**
UP	0.419	**-0.324****	0.743	0.689	**-0.622****	1.311	0.532	**-0.565***	1.098
	(0.517)	**(0.033)**	(0.224)	(0.596)	**(0.014)**	(0.282)	(0.609)	**(0.064)**	(0.273)
EM	**0.402***	0.039	**0.363***	0.494	**0.155****	0.339	0.264	0.130	0.134
	(0.084)	(0.317)	**(0.073)**	(0.150)	**(0.022)**	(0.261)	(0.373)	(0.275)	(0.643)
AUD	0.318	0.038	0.280	1.577	0.116	1.460	1.146	0.412	0.734
	(0.712)	(0.887)	(0.736)	(0.553)	(0.808)	(0.553)	(0.640)	(0.189)	(0.745)
UW	-0.080	0.034	-0.114	-0.330	0.093	-0.422	-0.315	-0.048	-0.267
	(0.642)	(0.532)	(0.495)	(0.539)	(0.322)	(0.397)	(0.512)	(0.611)	(0.548)
VC	0.056	-0.224	0.280	0.250	-0.312	0.562	0.631	-0.182	0.813
	(0.897)	(0.529)	(0.599)	(0.801)	(0.626)	(0.613)	(0.406)	(0.800)	(0.412)
INSIDER	-0.341	-0.050	-0.290	**-1.569****	-0.432	**-1.137***	**-2.038*****	-0.150	**-1.888****
	(0.312)	(0.876)	(0.517)	**(0.029)**	(0.251)	**(0.090)**	**(0.004)**	(0.809)	**(0.021)**
AGE	0.031	-0.005	0.036	0.376	-0.027	0.403	**0.479***	-0.032	**0.511***
	(0.743)	(0.947)	(0.759)	(0.184)	(0.819)	(0.145)	**(0.099)**	(0.763)	**(0.063)**
HITECH	**0.634***	0.154	0.480	0.775	**0.560***	0.215	0.735	0.599	0.136
	(0.057)	(0.161)	(0.103)	(0.359)	**(0.089)**	(0.792)	(0.268)	(0.127)	(0.843)
PROCEED	-0.059	**-0.167****	0.107	-0.064	**-0.328*****	0.264	-0.068	**-0.243*****	0.175
	(0.768)	**(0.016)**	(0.579)	(0.857)	**(0.002)**	(0.440)	(0.818)	**(0.003)**	(0.532)
N	89	202	291	89	202	291	89	202	291
Adj R^2	0.165	0.062	0.092	0.077	0.083	0.081	0.072	0.066	0.069

Notes:

1. The table presents results of the regression model of underpricing (*UP*) separately for the pre-SOX subsample (the Pre-SOX column) and the post-SOX subsample (the Post-SOX column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report *p*-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 5.A for variable definitions.

2. The model encompasses Model 5.1 and extends it to allow for interactions with *SOX*:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM_i + \beta_5 AUD_i + \beta_6 UW_i \\ & + \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_{10} HITECH_i + \beta_{10} PROCEEDS_i \\ & + \gamma_1 SOX_i * UP_i + \gamma_2 SOX_i * SOX_i + \gamma_3 SOX_i * EM_i + \gamma_4 SOX_i * AUD_i \\ & + \gamma_5 SOX_i * UW_i + \gamma_6 SOX_i * VC_i + \gamma_7 SOX_i * INSIDER_i \\ & + \gamma_8 SOX_i * AGE_i + \gamma_9 SOX_i * HITECH_i + + \gamma_9 SOX_i * PROCEED + \varepsilon_t \end{aligned} \quad (5.1.b)$$

The "Difference" column reports the value of the of the γ_i, i={1,2,…,10} coefficients, their p-values as well as the adjusted-R^2 for this regression.

Overall, the findings for long-term performance are mixed in relation to home institutions and SOX. First, IPOs that are coming from strong institutional environments at their home country experience lower long-term performance with respect to the IPOs that are coming from weaker home legal environment. However, these findings offer only limited support to the assumption of a change in the long-term performance of foreign IPOs in the US as a result of a suggested improvement in the information environment following SOX. More specifically, there is no significant evidence that foreign firms, as a whole, experience different long-term performance in the pre- and post-SOX period. However, there is when splitting the sample to pre- and post- SOX periods, there is no significant difference in the magnitude of intercepts. However, there is some evidence that both firms from stronger home legal institutions experience lower long-term returns in the pre-SOX period relative to the post-SOX one. Together, results suggest that home legal intuitions matter for the performance of foreign IPOs in the US. They also suggest that SOX has changed the magnitude for these subsamples separately even if not to the group of the foreign IPOs as a whole. The next subsection presents additional analyses and sensitivity tests to further strengthen the findings.

5.6 Additional Analysis

In order to augment and possibly enhance our primary findings, a selection additional analysis has been carried out as discussed below.

5.6.1 Long-Run Performance Adjusted to Domestic US IPO

The main analysis presented follows the methodology used by Johnston and Madura (2009) for aftermarket returns. That is, the buy-and-hold returns of the IPOs adjusted to the CRSP value-weighted market index over the same period. However, Barber and Lyon (1996, 1997) and Lyon et al. (1999) argue for significant biases when long-term returns are benchmarked on indexes. Thus, to ensure robust results, I therefore compute *BHAR* using two additional approaches:

5.6.1.1 A Matching-Firm Approach

In this approach my estimate of *BHAR1*, *BHAR2* and *BHAR3* follows the match-sample approach. Similarly to Chang et al. (2010) the selection of matching firms was based on their industry, book-to-market ratio and market value of equity. I first identify the non-issuing US domestic firms. Thus, the firms must be public for more than three years prior the matched IPO date. I then chose a firm from the same industry that has the closest sum of differences with relation to the market-to-book value and capitalization size of that of the IPO sample firm. I then verify that none of the original matched firm drops out before the IPO sample. However, in cases when the IPO sample drops, both the sample firms and the matching firm are signed zero returns for the reminder period. The *BHAR1*, *BHAR2* and *BHAR3* are the buy-and-hold returns of sample IPO minus the buy-and-hold returns of the matching firms in the first, second and third year of trading, excluding the first issue day, respectively. I then replace the *BHAR1*, *BHAR2* and *BHAR3* measures of the original tests and apply the same models to the long-term measures calculated using the matched-firms approach. The findings in Tables 5.7 and 5.8 are mostly consistent with the result of the main test in which IPO sample returns are benchmarked to the CRSP value-weighted market index over the same period as reported in Tables 5.5 and 5.6. Thus, there is significant evidence that IPOs from weak home legal institutions experience higher abnormal stock returns. In additional, there is no significant evidence for the effect of SOX on long-term returns of foreign IPOs. Overall, finding of the matched firm approach support the notion that home legal institutional differences matter for the long-run differences in stock performance of foreign IPOs in the US. They also provide evidence that SOX did not impact the long-run performance of these firms.

Table 5.7: Long-Term Performance Analyzed between Strong and Weak Home Legal Institutions benchmarked to matching firms

	BHAR1			***BHAR2***			***BHAR3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	0.364	**7.416*** **		**-4.246***	**3.788****		-0.988	8.379	
	(0.873)	**(0.003)**		**(0.091)**	**(0.033)**		(0.719)	(0.176)	
INST			**-7.053****			**-8.035****			-9.367
			(0.021)			**(0.011)**			(0.226)
UP	**-1.061****	-0.723	-0.338	-0.891	**-1.623****	0.732	-0.903	**-1.922****	1.019
	(0.043)	(0.215)	(0.446)	(0.171)	**(0.044)**	(0.125)	(0.281)	**(0.024)**	(0.146)
SOX	**0.901*****	-0.037	**0.938***	0.008	**0.490****	-0.481	-0.585	0.647	-1.233
	(0.010)	(0.868)	**(0.071)**	(0.990)	**(0.046)**	(0.549)	(0.657)	(0.250)	(0.484)
EM	-0.035	-0.135	0.100	0.052	0.061	-0.009	0.265	**0.179***	0.087
	(0.929)	(0.368)	(0.828)	(0.906)	(0.239)	(0.986)	(0.404)	**(0.054)**	(0.794)
AUD	-0.410	0.298	-0.707	-0.470	0.347	-0.818	-0.578	1.663	-2.241
	(0.204)	(0.659)	(0.362)	(0.278)	(0.708)	(0.441)	(0.369)	(0.200)	(0.125)
UW	-0.234	-0.212	-0.021	-0.155	**-0.592***	0.437	-0.029	**-0.744*****	**0.716****
	(0.157)	(0.228)	(0.945)	(0.280)	**(0.081)**	(0.303)	(0.864)	**(0.004)**	**(0.040)**
VC	0.216	-0.206	0.422	**1.310****	-0.454	**1.764*****	1.276	0.071	1.204
	(0.771)	(0.645)	(0.562)	**(0.038)**	(0.320)	**(0.007)**	(0.157)	(0.928)	(0.278)
INSIDER	-0.581	-0.648	0.067	0.284	1.416	-1.132	0.797	0.371	0.426
	(0.596)	(0.304)	(0.958)	(0.877)	(0.128)	(0.553)	(0.542)	(0.846)	(0.817)
AGE	0.579	-0.082	**0.661****	0.668	-0.045	**0.713****	**0.599****	0.105	0.495
	(0.184)	(0.718)	**(0.041)**	(0.126)	(0.805)	**(0.040)**	**(0.039)**	(0.592)	(0.161)
HITECH	0.756	-0.066	0.822	0.617	0.464	0.153	0.126	1.026	-0.900
	(0.304)	(0.812)	(0.162)	(0.359)	(0.333)	(0.815)	(0.745)	(0.154)	(0.239)
PROCEED	0.045	**-0.216***	0.261	0.204	0.022	0.182	-0.021	-0.254	0.233
	(0.707)	**(0.073)**	(0.214)	(0.123)	(0.884)	(0.415)	(0.904)	(0.478)	(0.620)
N	133	154	287	133	154	287	133	154	287
Adj R^2	0.096	0.059	0.089	0.072	0.092	0.089	0.068	0.141	0.119

Note:

1. The table presents results of the regression models of *BHARJ* (where J={1,2 and 3}). These are reported in Table 5.5 separately for the strong home institutions subsample (the Strong column) and the weak home institutions subsample (the Weak column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. In the *BHAR1-BHAR3* columns the dependent variable is the long-term stock abnormal returns for the first, second third years of listing respectively, as explained in Table 5.5. We

report *p*-values below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. See Appendix 5.A for variable definitions.

2. The regression model encompasses Model 5.1 and extends it to allow for interactions with *INST* is:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM_i + \beta_5 AUD_i + \beta_6 UW_i \\ & + \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_{10} HITECH_i + \beta_{10} PROCEEDS_i \\ & + \gamma_1 INST_i * UP_i + \gamma_2 INST_i * SOX_i + \gamma_3 INST_i * EM_i + \gamma_4 INST_i * AUD_i \\ & + \gamma_5 INST_i * UW_i + \gamma_6 INST_i * VC_i + \gamma_7 INST_i * INSIDER_i \\ & + \gamma_8 INST_i * AGE_i + \gamma_9 INST_i * HITECH_i + + \gamma_9 INST_i * PROCEED + \varepsilon_t \end{aligned} \qquad (5.1.a)$$

The "Difference" column reports the value of the γ_i, i = {1,2,..,10} coefficients, their *p*-values, as well as the adjusted-R^2 for this regression.

Table 5.8: Long-Term Performance Analyzed between Post-SOX and Pre-SOX periods benchmarked to matching firms

	BHAR1			***BHAR2***			***BHAR3***		
	Post-SOX	**Pre-SOX**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**
INTERCEPT	3.098	**4.594****		0.960	1.496		-4.238	**6.835****	
	(0.534)	**(0.032)**		(0.868)	(0.404)		(0.446)	**(0.047)**	
SOX			-1.496			-0.536			**-11.073***
			(0.814)			(0.936)			**(0.099)**
INST	0.486	**-0.757*****	1.243	-0.027	-0.274	0.247	-0.527	0.251	-0.778
	(0.550)	**(0.006)**	(0.132)	(0.979)	(0.384)	(0.825)	(0.702)	(0.800)	(0.724)
UP	**1.644*****	**-1.197****	**2.841*****	0.514	**-1.304***	**1.818*****	-0.485	**-1.362***	0.877
	(0.009)	**(0.012)**	**(0.000)**	(0.398)	**(0.053)**	**(0.006)**	(0.582)	**(0.080)**	(0.542)
EM	0.305	-0.189	0.494	0.052	0.052	0.001	0.363	**0.177*****	0.186
	(0.514)	(0.214)	(0.189)	(0.931)	(0.655)	(0.990)	(0.517)	**(0.007)**	(0.728)
AUD	0.454	0.144	0.310	0.413	0.226	0.187	0.030	1.132	-1.102
	(0.792)	(0.543)	(0.850)	(0.859)	(0.550)	(0.938)	(0.989)	(0.115)	(0.591)
UW	-0.327	**-0.206***	-0.120	-0.553	-0.381	-0.172	**-0.727***	**-0.425****	-0.302
	(0.234)	**(0.051)**	(0.672)	(0.168)	(0.152)	(0.704)	**(0.089)**	**(0.027)**	(0.474)
VC	**0.777***	-0.386	**1.162****	1.275	-0.211	1.485	1.479	0.098	1.382
	(0.062)	(0.371)	**(0.016)**	(0.153)	(0.524)	(0.143)	(0.151)	(0.863)	(0.159)
INSIDER	-1.317	-0.728	-0.590	-0.793	0.589	-1.382	0.509	0.052	0.457
	(0.572)	(0.471)	(0.835)	(0.560)	(0.734)	(0.532)	(0.767)	(0.971)	(0.734)
AGE	**0.827*****	0.134	**0.693*****	**0.938*****	0.226	**0.712*****	**0.923***	**0.325***	0.599
	(0.007)	(0.640)	**(0.006)**	**(0.007)**	(0.387)	**(0.000)**	**(0.074)**	**(0.060)**	(0.240)
HITECH	0.370	0.527	-0.157	**0.833***	0.582	0.251	**1.138****	0.701	0.437
	(0.255)	(0.335)	(0.847)	**(0.084)**	(0.241)	(0.689)	**(0.027)**	(0.182)	(0.316)
PROCEED	-0.091	-0.094	0.003	0.068	0.051	0.017	0.374	**-0.294***	**0.668***
	(0.754)	(0.143)	(0.993)	(0.857)	(0.507)	(0.965)	(0.276)	**(0.085)**	**(0.054)**
N	88	199	287	88	199	287	88	199	287
Adj R^2	0.105	0.094	0.101	0.083	0.059	0.067	0.107	0.086	0.093

Notes:

1. The table presents results of the regression model of underpricing (*UP*) separately for the pre-SOX subsample (the Pre-SOX column) and the post-SOX subsample (the Post-SOX column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report *p*-values below the estimated coefficients. *,**,*** denote differences that are significant at

the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 5.A for variable definitions.

2. The model encompasses Model 5.1 and extends it to allow for interactions with *SOX*:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM_i + \beta_5 AUD_i + \beta_6 UW_i \\ & + \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_{10} HITECH_i + \beta_{10} PROCEEDS_i \\ & + \gamma_1 SOX_i * UP_i + \gamma_2 SOX_i * SOX_i + \gamma_3 SOX_i * EM_i + \gamma_4 SOX_i * AUD_i \\ & + \gamma_5 SOX_i * UW_i + \gamma_6 SOX_i * VC_i + \gamma_7 SOX_i * INSIDER_i \\ & + \gamma_8 SOX_i * AGE_i + \gamma_9 SOX_i * HITECH_i + + \gamma_9 SOX_i * PROCEED + \varepsilon_t \end{aligned} \qquad (5.1.b)$$

The "Difference" column reports the value of the of the γ_i, $i=\{1,2,\ldots,10\}$ coefficients, their p-values as well as the adjusted-R^2 for this regression.

5.6.1.2 US IPOs Benchmark

This approach uses the *BHAR1*, *BHAR2* and *BHAR3* of domestic US IPOs from a similar industry in a similar year as the foreign IPOs. I first identify and match domestic US IPOs with the sample IPOs based on their two digits industry association and the year of the IPO. I then calculated the BHAR of each domestic IPO. Aftermarket returns are calculated from the first day after the offer date, i.e. from the second day of trading, to the end of the first, second and third years of listing (*J*=1,2 and 3, respectively) using the buy-and-hold abnormal returns as represented by Equation 5.2.

Equation 5.2

$$BHARJ_d = \prod_{t=1}^{T}(1+R_{d,t}) - \prod_{t=1}^{T}(1+R_{b,t})$$

Where *J*={1,2,3} for the first, second and third year *BHAR*, respectively. Where $R_{d,t}$ stands for returns (in decimal form) of domestic IPO firm *d* on a trading day *t*, and $R_{b,t}$ represents the CRSP value-weighted market index (in decimal form) over the same period. Since Cowan and Segeant (2001) establish that winsorized abnormal returns produce more powerful test statistics, the abnormal returns are winsorized at 1% to decrease the influence of outliers.

Next, to estimate the aftermarket performance of the foreign IPOs sample, I repeat the calculations done in the main test for *BHAR1*, *BHAR2* and *BHAR3*. Thus, aftermarket returns are calculated from the first day after the offer date, i.e. from the second day of trading, to the end of the first, second and third years of listing (*J*=1,2 and 3, respectively) using the buy-and-hold abnormal returns as represented by Equation 5.3.

Equation 5.3

$$BHARJ_i = \prod_{t=1}^{T}(1+R_{i,t}) - \prod_{t=1}^{T}(1+R_{b,t})$$

Where $R_{i,t}$ stands for returns (in decimal form) of the IPO firm *i* on a trading day *t*, and $R_{b,t}$ represents the CRSP value-weighted market index (in decimal form) over the same period. Since Cowan and Segeant (2001) establish that winsorized abnormal returns produce more powerful test statistics, the abnormal returns are winsorized at 1% to decrease the influence of outliers. Finally, I measure *BHAR1*, *BHAR2* and *BHAR3* as the difference between $BHARJ_i$ and $BHARJ_d$ where J={1,2,3}.

The findings in Tables 5.9 and 5.10 are mostly consistent with the result of the main test in which IPO sample returns are benchmarked to the CRSP value-weighted market index over the same period as reported in Tables 5.5 and 5.6. Overall, finding of the matched firm approach support the hypothesis that home legal institutional differences matter for the long-run difference of foreign IPOs in the US. They also provide evidence that SOX did not impact the long-run performance of the foreign IPOs as a whole while evidence suggest that foreign IPOs from Strong legal institutions are underperforming the Weak ones in the pre-SOX period across all time windows (one, two and three years after listing).

Table 5.9: Long-Term Performance Analyzed between Strong and Weak Home Legal Institutions benchmarked to US IPOs

	BHAR1			***BHAR2***			***BHAR3***		
	Strong	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**	**Strong**	**Weak**	**Difference**
INTERCEPT	1.384	**3.597*** **		0.933	**10.801*** **		1.136	**7.264*** **	
	(0.276)	**(0.006)**		(0.622)	**(0.000)**		(0.651)	**(0.006)**	
INST			-2.212			**-9.869** **			-6.127
			(0.321)			**(0.013)**			(0.162)
UP	**-0.225***	**-0.512** **	0.287	-0.053	**-1.003** **	**0.950** **	0.227	**-0.883** **	**1.109*** **
	(0.076)	**(0.024)**	(0.113)	(0.662)	**(0.013)**	**(0.013)**	(0.501)	**(0.025)**	**(0.005)**
SOX	0.341	0.001	0.339	0.062	-0.378	0.440	0.326	**-0.799***	**1.125** **
	(0.128)	(0.995)	(0.225)	(0.834)	(0.309)	(0.256)	(0.509)	**(0.069)**	**(0.025)**
EM	**0.128***	0.066	0.063	**0.426** **	0.017	0.409	0.206	0.050	0.156
	(0.067)	(0.538)	(0.629)	**(0.019)**	(0.920)	(0.164)	(0.215)	(0.752)	(0.526)
AUD	-0.392	0.299	-0.691	-0.490	0.985	-1.474	-0.076	1.121	-1.197
	(0.348)	(0.503)	(0.170)	(0.306)	(0.319)	(0.168)	(0.928)	(0.211)	(0.323)
UW	0.091	-0.021	0.112	0.225	-0.058	0.283	0.120	-0.197	0.317
	(0.228)	(0.785)	(0.327)	(0.140)	(0.788)	(0.343)	(0.407)	(0.210)	(0.103)
VC	0.142	-0.265	0.407	-0.107	-0.345	0.238	0.538	-0.506	1.045
	(0.306)	(0.541)	(0.331)	(0.385)	(0.711)	(0.798)	(0.121)	(0.551)	(0.257)
INSIDER	0.169	0.647	-0.478	0.326	-0.255	0.581	-0.470	0.439	-0.909
	(0.611)	(0.335)	(0.582)	(0.458)	(0.836)	(0.688)	(0.556)	(0.776)	(0.606)
AGE	0.031	-0.041	0.072	**0.219** **	-0.090	**0.309** **	**0.326***	-0.036	0.362
	(0.789)	(0.627)	(0.600)	**(0.049)**	(0.495)	**(0.031)**	**(0.052)**	(0.820)	(0.103)
HITECH	-0.236	**0.531** **	**-0.768*** **	-0.258	**0.969** **	**-1.227** **	-0.168	**0.946** **	**-1.114***
	(0.164)	**(0.014)**	**(0.005)**	(0.345)	**(0.024)**	**(0.027)**	(0.714)	**(0.017)**	**(0.067)**
PROCEED	**-0.091***	**-0.195** **	0.104	-0.139	**-0.533*** **	**0.394***	-0.127	**-0.333** **	0.206
	(0.067)	**(0.042)**	(0.349)	(0.359)	**(0.001)**	**(0.096)**	(0.496)	**(0.024)**	(0.436)
N	133	158	291	133	158	291	133	158	291
Adj R^2	0.090	0.075	0.082	0.180	0.083	0.106	0.064	0.106	0.097

Note:

1. The table presents results of the regression models of *BHARJ* (where *J*={1,2 and 3}). These are reported in Table 5.5 separately for the strong home institutions subsample (the Strong column) and the weak home institutions subsample (the Weak column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. In the *BHAR1-BHAR3* columns the dependent variable is the long-term stock abnormal returns for the first, second third years of listing respectively, as explained in Table 5.5. We report *p*-values below the estimated coefficients. Coefficients for which the *p*-value is 10% or better appear in bold face. All

regressions control for possible correlation of the residuals within time clusters using Rogers standard errors (Petersen, 2009). *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. See Appendix 5.A for variable definitions.

2. The regression model encompasses Model 5.1 and extends it to allow for interactions with *INST* is:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM_i + \beta_5 AUD_i + \beta_6 UW_i \\ & + \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_{10} HITECH_i + \beta_{10} PROCEEDS_i \\ & + \gamma_1 INST_i * UP_i + \gamma_2 INST_i * SOX_i + \gamma_3 INST_i * EM_i + \gamma_4 INST_i * AUD_i \\ & + \gamma_5 INST_i * UW_i + \gamma_6 INST_i * VC_i + \gamma_7 INST_i * INSIDER_i \\ & + \gamma_8 INST_i * AGE_i + \gamma_9 INST_i * HITECH_i + + \gamma_9 INST_i * PROCEED + \varepsilon_t \end{aligned} \quad (5.1.a)$$

The "Difference" column reports the value of the γ_i, i = {1,2,..,10} coefficients, their p-values, as well as the adjusted-R^2 for this regression.

Table 5.10: Long-Term Performance Analyzed between Post-SOX and Pre-SOX periods benchmarked to US IPOs

	BHAR1			***BHAR2***			***BHAR3***		
	Post-SOX	**Pre-SOX**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**	**Post-SOX**	**Pre-SOX**	**Difference**
INTERCEPT	1.550	**3.294*****		2.662	**6.442*****		2.422	**5.279*****	
	(0.607)	**(0.006)**		(0.579)	**(0.001)**		(0.585)	**(0.001)**	
SOX			-1.745			-3.780			-2.857
			(0.551)			(0.414)			(0.501)
INST	-0.028	**-0.367***	0.339	-0.183	**-0.769*****	0.587	**0.662***	**-0.555***	**1.217*****
	(0.916)	**(0.072)**	(0.275)	(0.670)	**(0.003)**	(0.195)	**(0.066)**	**(0.053)**	**(0.005)**
UP	0.419	**-0.324****	0.743	0.689	**-0.622****	1.311	0.532	**-0.565***	1.098
	(0.517)	**(0.033)**	(0.224)	(0.596)	**(0.014)**	(0.282)	(0.609)	**(0.064)**	(0.273)
EM	**0.402***	0.039	**0.363***	0.494	**0.155****	0.339	0.264	0.130	0.134
	(0.084)	(0.317)	**(0.073)**	(0.150)	**(0.022)**	(0.261)	(0.373)	(0.275)	(0.643)
AUD	0.318	0.038	0.280	1.577	0.116	1.460	1.146	0.412	0.734
	(0.712)	(0.887)	(0.736)	(0.553)	(0.808)	(0.553)	(0.640)	(0.189)	(0.745)
UW	-0.080	0.034	-0.114	-0.330	0.093	-0.422	-0.315	-0.048	-0.267
	(0.642)	(0.532)	(0.495)	(0.539)	(0.322)	(0.397)	(0.512)	(0.611)	(0.548)
VC	0.056	-0.224	0.280	0.250	-0.312	0.562	0.631	-0.182	0.813
	(0.897)	(0.529)	(0.599)	(0.801)	(0.626)	(0.613)	(0.406)	(0.800)	(0.412)
INSIDER	-0.341	-0.050	-0.290	**-1.569****	-0.432	**-1.137***	**-2.038*****	-0.150	**-1.888****
	(0.312)	(0.876)	(0.517)	**(0.029)**	(0.251)	**(0.090)**	**(0.004)**	(0.809)	**(0.021)**
AGE	0.031	-0.005	0.036	0.376	-0.027	0.403	**0.479***	-0.032	**0.511***
	(0.743)	(0.947)	(0.759)	(0.184)	(0.819)	(0.145)	**(0.099)**	(0.763)	**(0.063)**
HITECH	**0.634***	0.154	0.480	0.775	**0.560***	0.215	0.735	0.599	0.136
	(0.057)	(0.161)	(0.103)	(0.359)	**(0.089)**	(0.792)	(0.268)	(0.127)	(0.843)
PROCEED	-0.059	**-0.167****	0.107	-0.064	**-0.328*****	0.264	-0.068	**-0.243*****	0.175
	(0.768)	**(0.016)**	(0.579)	(0.857)	**(0.002)**	(0.440)	(0.818)	**(0.003)**	(0.532)
N	89	202	291	89	202	291	89	202	291
Adj R^2	0.105	0.062	0.092	0.077	0.083	0.081	0.072	0.066	0.069

Notes:

1. The table presents results of the regression model of underpricing (*UP*) separately for the pre-SOX subsample (the Pre-SOX column) and the post-SOX subsample (the Post-SOX column). The Difference column reports the difference between the two subsample coefficients using the interactions model described below. I report *p*-values below the estimated coefficients. *,**,*** denote differences that are significant at the 0.10, 0.05 and 0.01 level, respectively. All regressions control for possible correlation of the residuals within industry clusters using Rogers standard errors (Petersen, 2009). See Appendix 5.A for variable definitions.

2. The model encompasses Model 5.1 and extends it to allow for interactions with *SOX*:

$$\begin{aligned} BHARJ_i = {} & \alpha + \beta_1 INST_i + \beta_2 UP_i + \beta_3 SOX_i + \beta_4 EM_i + \beta_5 AUD_i + \beta_6 UW_i \\ & + \beta_7 VC_i + \beta_8 INSIDER_i + \beta_9 AGE_i + \beta_{10} HITECH_i + \beta_{10} PROCEEDS_i \\ & + \gamma_1 SOX_i * UP_i + \gamma_2 SOX_i * SOX_i + \gamma_3 SOX_i * EM_i + \gamma_4 SOX_i * AUD_i \\ & + \gamma_5 SOX_i * UW_i + \gamma_6 SOX_i * VC_i + \gamma_7 SOX_i * INSIDER_i \\ & + \gamma_8 SOX_i * AGE_i + \gamma_9 SOX_i * HITECH_i + + \gamma_9 SOX_i * PROCEED + \varepsilon_t \end{aligned} \qquad (5.1.b)$$

The "Difference" column reports the value of the of the γ_i, $i=\{1,2,\ldots,10\}$ coefficients, their p-values as well as the adjusted-R^2 for this regression.

5.6.2 Alternative Indices for Institutional Environment

In search for additional home institutional ranking, I redefine the *INST* variable according to two different indices proposed by Leuz (2010) and Bruner at al. (2004). Leuz (2010) divides a list of 49 countries into three clusters according to their regulatory and institutional differences. For the purpose of this paper when defining the variable *INST_L*, I identify Cluster 1 as Strong (*INST_L*=1) and Clusters 2 and 3 are combined to reflect weak institutional environments (*INST_L*=0). Finally, though China is not present in Leuz (2010), I categorize IPOs coming from China as part of the weak home institutions subgroup. Alternatively, Bruner at al. (2004) uses the Country Risk Rating index as published in Euromoney's annual surveys to score the home institutions of firms going to the US. They assign country scoring based on the year of the first IPO from each country. I use their scoring to calculate the *INST_EU* variable when a country with a score of below or equal to (above) the median is identified as having a weak (strong) institutional environment.

However, using the above mentioned alternative indices results in no material changes in the estimated coefficients and therefore are not reported in the paper. Furthermore, it is important to note that these indices do not exhibit temporal variations and thus do not reflect changes in regulatory and institutional environments at the country of origin. The relevance of this limitation is that it increases in time and with the sample size.

5.6.3 Underwriters Prestige and Earnings-Management

Chang et al. (2010) argue that the prestigious underwriters limit any potential earnings manipulation in order to protect their reputation. And thus they claim that IPOs with more prestigious underwrites exhibit substantially less-aggressive earnings management. They document a negative relationship between earnings management and post-offer stock performance of IPOs which are associated with less prestigious underwriters. Thus, to control for the interaction between earnings management and underwriter's reputation I included an

interaction variable *UW_EM* that is an interaction variable between *EM* and *UW*. I run the regressions first with the exclusion of *EM* and *UW* and a second time with both the interacted variable *UW_EM* and the individual variables *UW* and *EM*. In all regression results the main results remain while no significant results for *UW_EM* come up. Since this procedure results in no material changes in the estimated coefficients and therefore is not reported in the paper.

5.6.4 China Indicator

IPOs coming from China become dominant in the years following the enactment of SOX and constitute 50.9% of the post-SOX sample. Moreover, previous studies also document a significant level of long-run underperformance of A-level IPO in China relative to a size and boot-to-market match portfolios (Chan et al., 2004). Thus, to control for specific potential effects originating from Chinese IPOs I include the dummy variable *CHINA* to Model 5.1 which equals 1 when an IPO is coming from China and 0 otherwise. Once again, this procedure results in no material changes in the estimated coefficients and therefore is not reported in the paper.

5.6.5 Exchange Membership

To test for potential stock exchange membership effects, I run Model 5.1 with the inclusion of three indicators: *NYSE*, *NASDAQ* and *AMEX* when each gets the value 1 if the US market of issuing is New York Stock Exchange, NASDAQ or the American Stock Exchange, respectively and otherwise the value is set to 0. This procedure results in no material changes in the estimated coefficients and therefore is not reported in the paper.

5.7 Conclusion

By making an initial public offering in the US, foreign firms become subject to the US regulation and enforcement while, arguably, escaping the effect of home legal institutions. Prior research on foreign listing to date has mostly focused on

cross-listing of mature firms and not pure IPO listing. However, by listing directly on US capital markets and bypassing their home markets, foreign IPOs are exposed to a higher level of scrutiny by the SEC and other US market participants. Both arguments combined suggest that foreign IPOs are least expected to be influenced by their home institutions in making their reporting choices and consequently in their aftermarket stock performance. Using a unique dataset of foreign IPOs listing on US capital markets in the years 1990-2009, I investigate whether aftermarket performance of foreign IPOs is subject to their home legal institutions. I further investigate whether the structural changes introduced by SOX have had a different impact on foreign firms coming from weak and strong institutional environments. To date, much of the debate regarding the Act has focused on whether it has proven to be effective in reducing the costs of capital and its effects of the competitiveness position of US capital markets. However, to my knowledge, no study has investigated the specific effects of SOX on foreign issuers in terms of asymmetric information problems related to the aftermarket performance originating from the firm's specific home institutional environment.

Prior research shows that the long-term performance is lower with higher levels of information asymmetry (e.g., Miller, 1977; Ritter and Welch, 2002; Teoh et al., 1998). Information asymmetry problems are rooted in initial public offering due to the transition from private status to public status (Ritter, 1991, 2011). This is due to the potential agency conflicts that between different parties in the IPO process and the little operating history that is conditional to a grounded valuation process (Burton et al., 2010). There is also evidence that the institutional environment at the country of issuing affects long-term performance (Burton et al., 2010). These factors are unique in the foreign IPOs setting suggested in this paper. First, most of the prior research on foreign firms in the US only covers mature cross listed firms or ADRs. Second, the specific case in which a firm bypasses its home market and lists in a foreign market with different institutional factors make these firms different from domestic IPOs. Third, by studying the effects of the home country institutions this study also looks at the differences within the foreign IPOs group. Studying all foreign first time issues by focusing

on their home institutions may enhance the prior findings further especially with respect to the question of whether global listing helps to mitigate or maybe even eliminate the effects of home country institutions.

The empirical findings reveal that foreign IPOs are of higher quality relative to domestic US IPOs. These results are consistent with previous studies such as Bruner et al. (2004). In relation to the country of origin, my findings show that IPOs, which are coming from stronger institutional environment, experience lower long-run returns. This is consistent across one, two and three years from IPO date. This evidence is consistent with Licht's (2003) "trading down" argument and that bonding is not the overriding motivating factor in the decision to list on US capital markets. Furthermore, there is no evidence for a change in aftermarket stock performance for the foreign IPO sample as a whole in the post-SOX period relative to the pre-SOX period.

Overall, being robust to a number of sensitivity tests the difference in findings are most likely relates to differences in reporting incentives, information asymmetry and regulatory oversight of foreign IPOs. Thus, listing in the US does not eliminate the effect of the home legal institutions, the causality behind which warrants further research. Nevertheless, a number of limitations apply to my research design. First, the empirical investigation uses three benchmarks to measure the abnormal long-term performance of foreign IPOs in the US. All these benchmarks are to firms traded on US markets (indices, matched US mature firms, domestic IPOS) but some of the cross-listed literature suggests that foreign firms are sensitive to non-US markets. Future research can focus on such alternative benchmarks.

Appendix 5. A: Variable Definitions

Variable	Definition	Source
BHAR1	Buy-and-hold abnormal returns in foreign firms calculated as the excess returns over the CRSP value-weighted market index in the first year of listing.	COMPUSTAT
BHAR2	Buy-and-hold abnormal returns in foreign firms calculated as the excess returns over the CRSP value-weighted market index in the first two years of listing.	COMPUSTAT
BHAR3	Buy-and-hold abnormal returns in foreign firms calculated as the excess returns over the CRSP value-weighted market index in the first three years of listing.	COMPUSTAT
INST	An indicator variable that is set equal to 1 if the product of law enforcement index (the International Country Risk Guide – ICRG – Law and Order index) and the revised anti-director index of La Porta et al. (1998) for the home country is above the sample median, 0 otherwise	ICRG website and Spamann (2010)
SOX	An indicator variable that is set equal to 1 if the foreign registrant issues shares in the post-SOX period (2002 onwards).	
EM	Abnormal accruals in foreign firms calculated according to the regression in Ball and Shivakumar (2008)	COMPUSTAT and IPO Prospectus
AUD	An indicator variable that is set equal to 1 if the auditing firm is a Big-6, Big-5 or Big-4 in 1990-1997, 1998-2001 and 2002 onwards, respectively; 0 otherwise	IPO Prospectus
UW	Underwriters Rank obtained from Jay Ritter's website on 06/05/2011	IPO Prospectus and Jay Ritter's website
VC	An indicator variable that is set equal to 1 if the IPO is VC backed, 0 otherwise.	IPO Prospectus and SDC Platinum
INSIDER	The percentage of shares retained in the firm after the offering to total shares outstanding after the offering	IPO Prospectus
AGE	First I calculate Year of IPO minus founding year. Then I take the natural logarithm of (1+Age)	IPO Prospectus
HITECH	An indicator variable that is set equal to 1 if the firm operates in a high-tech industry and 0 otherwise, as defined in Tech America Foundation[54]	SDC Platinum and CRSP
PROCEEDS	Natural logarithm of offer proceeds. The variable is indexed to 2005 value of US dollars	IPO Prospectus

[54] See http://www.techamerica.org/sic-definition. Retrieved on 02/08/2011

CHAPTER 6

CONCLUSIONS

Chapter 6: Conclusions

6.1 Introduction

This thesis attends to some unresolved questions regarding the impact of institutional differences on information asymmetry in foreign IPOs by studying the information asymmetry problems inherent in new foreign issues in the US. Using a unique dataset of foreign IPOs listing on US capital markets in the years 1990-2009, I investigate the relation between the reporting quality, underpricing and aftermarket stock performance, and the soundness of home legal environment of these firms. I also investigate the effects of the enactment of SOX in the special case of foreign firms that make their initial public listing in the US. I further investigate whether the structural changes introduced by SOX have had a different impact on foreign firms coming from weak and strong institutional environments.

This is an important focus since the Sarbanes-Oxley Act of 2002 introduced higher costs for listed firms in the form of new reporting requirements, corporate governance and accounting mechanisms, and information disclosure requisites. All were created with the aim of increasing investors' confidence and eventually decreasing costs of capital for listed companies. Although strongly debated and subsequently contested, these changes were imposed on both domestic and foreign firms listed on US capital markets.

To date, much of the debate regarding the Act has focused on whether it has proven effective reduction of the costs of capital and its effects of the competitiveness position of US capital markets. Yet, to my knowledge, no study has investigated the specific effects of SOX on foreign issuers in terms of asymmetric information problems in the initial offering stage originating from the firm's specific home institutional environment and the effects of the latter on the first day market performance.

This chapter presents a summary of the main findings of this thesis. It then presents the research limitations and some potential future avenues of research.

6.2 Summary of Results

This thesis presents a detailed analysis of the reporting quality around IPOs dates, the initial market returns and aftermarket stock performance of foreign IPOs listed on US capital markets. This analysis focuses on roles that the differences between the home legal institutions play. It goes further to investigate whether the enactment of SOX affected these roles. Chapter 1 introduces the main motivations of the thesis, its contribution to existing literature and the unique sample used in the empirical chapters. Chapter 2 provides an overview of the theoretical background related to initial public offerings, cross-border listings and the Sarbanes-Oxley Act. Chapters 3-4 reports three empirical studies addressing the thesis motivations and focus.

Overall, the main findings of this thesis suggest that home country legal institutions matter to the reporting characteristics, to the costs of capital at the initial listing date and to the aftermarket stock performance of foreign IPOs in the US. Furthermore, the empirical chapters present mixed evidence regarding the effects of the home country institutions and with respect to the effects of SOX on the reporting characteristics, to the cost of capital at the initial listing date and to the aftermarket stock performance. The findings support to the notion that firms from strong home institutions list in the US to avoid stricter regulations at their home markets but at the same time they show that investors pay a higher premium to IPOs that are coming from strong home legal environments relative to those who come from a weak one. Furthermore, in contrast with some previous research on cross-listed firms, the results of this study suggest that although foreign IPOs may abandon their home capital markets by listing in the US, their reporting characteristics and costs of capital are nonetheless influenced by home country institutions. The main findings for each empirical chapter are presented in the next subsections.

6.2.1 Earnings Quality in foreign IPOs in the US: The Role of Home Country Institutions

The first empirical study of this thesis (Chapter 3) examines the role of home country institutions in earnings quality of foreign IPOs listed on US capital markets. Foreign firms that conduct their IPOs in the US may be regarded as any other US firm. Issuing shares for the first time in the US subjects these firms to

the US regulation and enforcement while, arguably, escaping the effect of home institutions. Moreover, relative to mature cross-listed firms, foreign IPOs are exposed to a higher level of scrutiny by the SEC and other US market participants. Both arguments combined suggest that foreign IPOs are least expected to be influenced by their home institutions in making their reporting choices.

This paper provides evidence pertaining to this prediction. The findings indicate a higher level of earnings management in foreign IPOs in than US IPOs. Further evidence show more extreme reporting (large positive or negative abnormal accruals), and of earnings inflation, in foreign IPOs. These findings are more pronounced for IPOs from countries with *strong* home legal institutions. This evidence is consistent with Licht's (2003) "trading down" argument and that bonding is not the overriding motivating factor in the decision to list in the US.

6.2.2 The Effects of Home Country Institutions and the Sarbanes-Oxley Act on Underpricing of Foreign IPOs in the U.S

In the second empirical study of this thesis (Chapter 4), I focus on underpricing as a proxy for adverse selection between management, investors and other stakeholders in the issuing firm. I argue that if SOX has been effective in reducing information asymmetry, there should be evidence of lower levels of underpricing for IPOs in the period following the Act's enactment. Also, when focusing on the strong versus weak institutional environments of the home country for foreign IPOs, there should be no differences in reaction to SOX between the two groups. I also test for the differences in the role of corporate governance mechanisms in IPOs coming from different institutional environments and for a potential change in this role as a result of the enactment of SOX.

The empirical findings are only partially consistent with these theoretical formulations. First, IPOs coming from a strong institutional environment are less underpriced. However, there is no evidence for a change in underpricing in the post- SOX period. In addition, consistent with prior studies suggesting that voluntary governance tools can be used as a substitution for to regulations (Bruno and Claessens, 2010), I find some evidence that IPOs with prestigious underwriters underprice less. Furthermore, findings reveal that a public offering

with a prestigious auditor is underpriced less in the post-SOX period. I also find that accounting conservatism is negatively associated with underpricing when firms come from countries with strong home institutions. In addition, I use an alternative measure of initial performance which is commonly used in literature and one that captures the premium that investors' assign to firm value above the net book value. Findings show that IPOs from countries with strong legal institutions benefit from a higher premium from investors. This premium is negatively related to their level of accounting conservatism. I show a decrease in premium in the post-SOX period. Collectively, the results of this study stress the difference between the two sets of groups, namely strong and weak home institutions but are unable to provide conclusive evidence towards the effectiveness of SOX, especially in achieving its primary objective of reducing the cost of capital in foreign IPOs.

6.2.3 The Effects of Home Country Institutions on the aftermarket stock performance of Foreign IPOs in the US

In the third empirical study of this thesis (Chapter 5), I investigate whether aftermarket performance of foreign IPOs is subject to their home legal. I further investigate whether the structural changes introduced by SOX have had a different impact on foreign firms coming from weak and strong institutional environments.

The empirical findings reveal that foreign IPOs are of higher quality relative to domestic US IPOs. These results are consistent with previous studies such as Bruner et al. (2004). In relation to the country of origin, my findings show that IPOs, which are coming from stronger institutional environment, experience lower long-run returns. This is consistent across one, two and three years from IPO date. Furthermore, there is no evidence for a change in aftermarket stock performance for the foreign IPO sample as a whole in the post- SOX period relative to the pre-SOX period.

Overall, being robust to a number of sensitivity tests, the difference in findings are most likely relates to differences in reporting incentives, information asymmetry and regulatory oversight of foreign IPOs. Thus, listing in the US does not eliminate the effect of the home legal institutions, the causality behind which warrants further research.

6.3 Limitations

A number of limitations apply to the research design, some of which are discussed in this section.

First, there is no control for potential self-selection bias. As mentioned in the thesis, the decision to list in the US follows at least two important steps. In the first step a firm decides to go public with all the implications of this strategic move towards growth. In the second step, the firm chooses to list in the US and bypassing its home capital market (or in some cases make an IPO in both at the same time). In this thesis, I do not study the decision of going public and why do the foreign issuers choose to list abroad. Similarly, SOX could change the nature of foreign firms coming to the US. This could have an impact on the findings.

Second, there are different methodologies to capture earnings quality in firms. In the first empirical paper (presented in Chapter 3) I use only three models of discretionary accruals. These models, while broadly used in accounting research, may not be sufficient in evaluating the earnings quality of IPOs. In addition, throughout this empirical chapter, US IPO data is merely used to generate the model of normal accruals against which foreign IPO abnormal accruals are assessed, even though these firms themselves might be different from seasoned non-IPO US firms. An alternative research design could have proceeded based upon a model of normal accruals derived from non-IPO firms listed on US stock exchanges, and then applied to all IPOS, whether foreign or domestic. However, at this point in time this design is very challenging due to the limited information available in digital format.

Third, although it is widely used, underpricing (used in the second empirical paper presented in Chapter 4) may not be a clear proxy for adverse selection problems as there may be other motivations behind underpricing such as increasing investors awareness of the firm by media coverage and protection from legal considerations.

Forth, the third empirical paper (presented in Chapter 5) measures long-term abnormal returns up to the third year post-listing. This time horizon may not fully capture the impact of the factors which affect long-performance. Other papers such as Fama (1998) and Carter et al. (1998) use a longer time horizon to measure long-term performance. In addition, the empirical investigation uses three

benchmarks to measure the abnormal long-term performance of foreign IPOs in the US. All these benchmarks are to firms traded on US markets (indices, matched US mature firms, domestic IPOS) but some of the cross-listed literature suggests that foreign firms are sensitive to non-US markets.

6.4 Future research

This section discusses ideas for future research that follow the issues that are covered in this dissertation.

First, as mentioned before, the main targeted markets to foreign listings have traditionally been the US markets but there is a recent increase in foreign listings in UK and Hong-Kong. Thus, it is highly interesting to explore the issues covered in this dissertation in the context of foreign IPOs in other global markets. Besides the immediate insights into these firms, studying global markets for foreign listings allow a greater understanding on the competition between stock exchanges on equity (e.g., Amira and Muzere, 2011; Zingales, 2007).

Second, earnings management is a key accounting issue for both practitioners and academics. As such, its measurement and implications have been the focus of a large body of academic research. The most common techniques for measuring earnings management have being focusing on the "discretionary" share of the accrual component of earnings (e.g., Jones, 1991; Dechaw et al., 1995, Kothari et al., 2005; Ball and Shivakumar, 2008; Teoh et al., 1998). Thus, in this thesis I measure earnings quality using three models of discretionary accruals. However, recent studies study other occurrences of earnings manipulations. For example, classification shifting is a case in which management reports core expenses as special items and in this way they report higher net earnings from core operations (McVay, 2006; Fan et al., 2010). Thus, future research of foreign IPOs can explore the earnings quality by utilizing additional approaches to the ones covered in this dissertation. In addition, with information becoming more publically available future research can use more information from the prospectuses of both domestic and foreign IPOs to make an even more comprehensive investigation on earnings quality and their effects.

Third, as to the long-term performance of foreign IPOs in the US, there is a large scope for future research. This paper accounts only to the cross-sectional

factors at the IPO stage and does not control for changes in factors over time. Although, this is a common approach in long-term performance studies, interest questions arise with controlling for the changes in factors. One example is the question of whether the IPO firm remains with the same auditors or change the auditing firm in the post-IPO era and how changing auditors affect performance. Also, prior research suggests a relation between initial IPO pricing and secondary equity offering (SEOs). While this dissertation does not follow the SEOs of foreign IPOs, the question of following offering is related to the initial pricing of foreign IPOs in the US is highly interesting. Furthermore, the dissertation does not study the delisting tendencies of foreign IPOs in the US and how delisting is related to home country institutions. An interesting extension of this research is therefore to focus on this relation.

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